THE CHILD AND HIS SCHOOL

GERTRUDE HARTMAN

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THE CHILD AND HIS SCHOOL

"I believe that education is the fundamental method of social progress and reform. . . .

"By law and punishment, by social agitation and discussion, society can regulate and form itself in a more or less haphazard or chance way. But through education society can formulate its own purposes, can organize its own means and resources, and thus shape itself with definiteness and economy in the direction in which it wishes to move."

JOHN DEWEY, "My Pedagogic Creed."

"Sociology demands of educators . . . that they shall not rate themselves as leaders of children, but as makers of society. Sociology knows no means for the amelioration or reform of society more radical than those of which teachers hold the leverage. The teacher who realizes his social function will not be satisfied with passing children to the next grade. He will read his success only in the record of men and women who go from the school eager to explore wider and deeper these social relations, and zealous to do their part in making a better future. We are the dupes of faulty analysis if we imagine that schools can do much to promote social progress until they are motived by this insight and this temper."

ALBION SMALL, "The Demands of Sociology upon Pedagogy."

THE CHILD AND HIS SCHOOL

An Interpretation of Elementary Education as a Social Process

BY

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FOREWORD

From among the many contributions that have enriched our professional literature during recent years, what selection shall be made by the teacher who seeks to translate the more modern philosophy of education into terms of daily school procedure and curriculum? What available sources adequately present the scientific background of that philosophy? Where shall we find interpretations of the scientific problems involved? What aids can the school library provide both for the teacher's use and for the children's reading?

Miss Hartman has answered these questions by combining a selection of library sources with an outline of the principles they illustrate, and a discussion of resulting implications for the school curriculum.

We believe her study will be welcomed by teachers as a résumé of exceptional value, discussing, as it does within a single volume, materials widely distributed through the pages of books and periodicals, many of them not easily available outside of special libraries. To the student and general reader we recommend it as presenting an able introduction to those precious conceptions of childhood and youth by which the word education is re-interpreted for those who hold it.

BUREAU OF EDUCATIONAL EXPERIMENTS.

New York, November, 1921.

PREFACE

This study was originally undertaken as a bibliography in response to a request made of the Bureau of Educational Experiments by a group of teachers representing several schools, all of whom are conducting experimental work in curriculum-making. In the course of the undertaking, it soon became evident that a bibliography to be of fundamental educational value must be governed by clearly defined principles of selection. The theory of the book is an attempt to organize in terms of the best authenticated knowledge, after careful study of a wide range of authoritative sources, a working hypothesis for experimental procedure. Since a pedagogy of any scientific pretensions presupposes a basis of modern biology, psychology, and sociology, of which it is a derivative science, a background of the points of view in those sciences, which have significance for education, is given in support of the educational philosophy advocated. Whenever significant points of view have lent themselves to direct quotation, the quotation has been incorporated with the text, since it conveys the idea in a far more vivid way than any digest could give.

The predominance of references and quotations from the works of Dr. John Dewey is significant as indicating Dr. Dewey's profound service to the cause of modern education, in translating the findings of modern science and philosophy into their educational equivalents. The deep obligation of the writer to the work of Dr. Dewey in this instance only reflects the indebtedness of an ever-growing body of workers in the educational field.

It gives me pleasure to record here my indebtedness to the Bureau of Educational Experiments, who have made it possible for me to undertake the study.

GERTRUDE HARTMAN.

New York, November, 1921.

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INTRODUCTION

THE PRESENT EDUCATIONAL SITUATION

Educationally speaking we seem to be "between two worlds, one dead, the other powerless to be born." There are numerous signs indicating that the old educational order is passing; there are vital tendencies everywhere showing the newer trend of the times; but as yet there is no new education in definite existence; even our most progressive schools can be looked upon only as a transition and a compromise. Current educational practice is still dominated by psychological assumptions which the new developments of psychology have shown to be untenable, and by sociological implications which are survivals from a social situation no longer existing.

The gap between school practice and the modern point of view in psychology is painfully apparent. The old psychology looked upon mind and the subject matter of thought as two distinct entities more or less antagonistic to each other, which it was the business of education to reconcile. Knowledge was abstracted from the situation which made it useful and looked upon as an end in itself. The teaching of subjects, not in their relation to experience, but according to a fixed order and classification, the following of logical methods of instruction, the belief in the doctrine of formal discipline—all find their explanation in this outworn psychological creed. "The supposed externality of subject-matter is but the counterpart phase of the alleged internal isolation of mind. If mind means

certain powers or faculties existing in themselves and needing only to be exercised *by* and *upon* presented subject-matter, the presented subject-matter must mean something complete in its ready-made and fixed separateness. Objects, facts, truths of geography, history, and science not being conceived as means and ends for the intelligent development of experience, are thought of just as stuff to be learned. Reading, writing, figuring are mere external forms of skill to be mastered. Even the arts—drawing, singing—are thought of as meaning so many ready-made things, pictures, songs, that are to be externally produced and reproduced. . . . Some means must be found to overcome the separation of mind and subject-matter; problems of methods in teaching are reduced to various ways of overcoming a gap which exists only because a radically *wrong method* had already been entered upon." (John Dewey, *Interest and Effort in Education,* p. 94.*)

"Philosophers have debated concerning the nature and method of knowledge. It is hardly cynical to say that positiveness of assertion on those points has been in proportion to the lack of any assured method of knowing in actual operation. The whole idea and scope of knowledge-getting in education has reflected the absence of such a method, so that learning has meant, upon the whole, piling up, worshiping, and holding fast to what is handed down from the past with the title of knowledge. But the *actual practice of knowing* has finally reached a point where learning means discovery, not memorizing traditions; where knowledge is actively constructed, not passively absorbed; and where men's beliefs must be openly recognized to be experimental in nature, involving hypothesis and testing through being set at work. Upon the side of subject-matter, the ideas of energy, process, growth, and evolutionary change have become supreme at the expense of the older notions of permanent substance, rigid fixity, and uniformity. The basic conceptions which form men's standards of interpretation and valuation have thus undergone radical altera-

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tion." (John Dewey, *Philosophy of Education,* Cyclopædia of Education, pp. 702-703.*) According to the old point of view mental structure tended to fall apart into various faculties working more or less independently; the new point of view is an analysis of the processes of adaptive behavior, showing how they came into existence as the result of certain needs of life, and how they work together to maintain human beings to meet the constantly changing conditions of their environment.

The false psychological basis of education is paralleled by a lack of realization of its social requirements. Strong social forces have for a long time been silently at work, and as a result our social life has undergone a complete and radical transformation. In education, on the other hand, outworn points of view have been handed on from generation to generation and thus perpetuated, we have become habituated to traditional modes of thinking—in a word, education has become institutionalized. The result is that it now bears no clear and direct relation to the needs and opportunities of contemporary life. "If we go back a few centuries, we find a practical monopoly of learning. The term *possession* of learning is, indeed a happy one. Learning was a class matter. This was a necessary result of social conditions. There was not in existence any means by which the multitude could possibly have access to intellectual resources. These were stored up and hidden away in manuscripts. Of these, there were at best only a few, and it required a long and toilsome preparation to be able to do anything with them. A high-priesthood of learning which guarded the treasury of truth and which doled it out to the masses under severe restrictions, was the inevitable expression of these conditions. But, as a direct result of the industrial revolution . . . this has been changed. Printing was invented; it was made commercial . . . The result has been an intellectual revolution. Learning has been put into circulation. While there still is, and probably always will be, a particular class having the special business of inquiry in hand, a distinctively learned class is henceforth out of

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the question. It is an anachronism. . . . Our school methods, and to a very considerable extent our curriculum, are inherited from the period when learning and command of certain symbols, affording as they did, the only access to learning, were all-important. The ideals of this period are still largely in control, even where the outward methods and studies have been changed . . . our present education . . . is highly specialized, one-sided and narrow. It is an education dominated almost entirely by the mediæval conception of learning. It is something which appeals for the most part simply to the intellectual aspect of our natures, our desire to learn, to accumulate information, and to get control of the symbols of learning; not to our impulses and tendencies to make, to do, to create, to produce, whether in the form of utility or art. . . .

"While training for the profession of learning is regarded as the type of culture, or a liberal education, the training of a mechanic, a musician, a lawyer, a doctor, a farmer, a merchant, or a railroad manager is regarded as purely technical and professional. The result is that which we see about us everywhere—the division into 'cultured' people and 'workers' . . . ." John Dewey, *The School and Society*, pp. 22–25.*) Such an educational situation tends to accentuate all the undemocratic tendencies of our time by strengthening class distinctions. Education under these circumstances tends to fall apart into two types seeking specialized aims. The education of the leisure class takes on more or less the character of an accomplishment; it is removed from the realities of every-day life and is concerned with an unproductive expenditure of time. On the other hand we see growing up a narrow, barren conception of technological education, dominated by the demands of industry rather than by educational principles, seeking to habituate workers in the various specialized modes of skill necessary for the efficient performance of their trades. Dissatisfaction is shown by the mass of the people to the making of a type of education a badge of inferiority, and

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they therefore make every effort to secure the leisure-class education regardless of its serviceability.

The pressing demand of the present is for the reëstablishment of human relationships upon a saner and more secure foundation. It constitutes a challenge which the school cannot evade. If democracy is to be anything more than a mere political term, there must be a new educational theory which will relate education directly to the changed conditions brought about by the industrial revolution. *The social aim of education for democracy must be of the sort which does not admit the implication of a class superiority. It will be vocational, but it will aim not at a living but a living together; it will be liberal, because it makes men free.* "We need to know the difference that the democratic ideal makes in our moral aims and methods; we need to come to consciousness of the changed conception of the nature of existence that its spread imports. We must reckon intelligently with the new and gigantic industrial forces that have come into being, securing by education a disposition to subordinate them to general welfare and to equality of opportunity so that they may not plunge us into class hatreds, intellectual deadness, and artistic vulgarity. Unless our science is to become as specialized and isolated a thing as was ever any scholastic scheme whose elaborate futility we ridicule, we must make the experimental attitude the pervasive ideal of all our intellectual undertakings, and learn to think habitually in terms of dynamic processes and genetic evolution. Clearness upon the issues, problems, and aims which our own period has brought to the foreground is a necessity for free and deliberate participation in the tasks that present-day education has to perform." (John Dewey, *Philosophy of Education,* Cyclopædia of Education, p. 703.*)

What is needed is a thorough overhauling of our educational beliefs, the rejection of everything that is outworn, and the formulation of a philosophy of curriculum organization consistent with the findings of modern biology, psychology and sociology, upon which alone can a sound

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philosophy of education be built. Unless we have such an organized philosophy we are without a standard by which to measure our day to day accomplishment, or to judge of the value of contemplated changes in procedure. Progress under any other conditions is due to a happy combination of external circumstances rather than to the application of scientific principles.

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PART I

THE SCIENTIFIC BASIS OF EDUCATION

The human species appears to possess characteristics so essentially different from those of every other animal species that it is not surprising if for centuries man regarded himself as a separate and distinct creation. Indeed, although the work of Darwin established beyond doubt our biological connection with the rest of the animate world, it is only within recent years that the evolutionary conception of life has materially influenced psychological and sociological thought. The development of a functional psychology, of a dynamic sociology, and the pragmatic point of view in philosophy, however, are all making increasingly clear how completely our mental, our social, and our moral life are the result of that age-long experience which stretches back into the dim past when the first bit of protoplasm stirred in the primordial ooze and life began upon the earth. Since in the child, with whom the school has to deal, we have the latest product of that race experience, it is necessary before attempting to formulate any mode of school procedure, to trace in a general way the workings of those great natural forces which have combined to make him what he is. What heritage have those forces bestowed upon him? What limitations do they impose upon education? What resources do they offer? These are the questions which education asks of evolution.

The Biological Basis

Wherever conditions on the earth are favorable, life exists, and the whole great concourse of living things, high as well as low, are forced to engage in a never-ending

struggle to maintain their existence. However rudimentary in structure an organism may be, it must perform all the functions necessary to sustain life or else be extinguished. As nourishment is fundamental to the continuance of life, all organisms perform ceaseless and untiring movements in search of food. The lower organisms usually move about at random, making trial of all sorts of conditions, until possibly by chance collision they meet success in their quest. Jennings in his *Behavior of the Lower Organisms* describes bacteria as swimming about in a direction determined by the position of the body axis until the movement subjects them to unfavorable change; whereupon they reverse and swim in some other direction with rapid movements and much sensitiveness to unfavorable influences. This soon results in their finding and remaining in the favorable regions. We see, then, that a living being is not an independent thing existing in isolated passivity; the very conditions of its life force it into active relationship with the world of materials and forces upon which it depends for its sustenance. Life may be regarded as the sum total of the functions of an organism in their reciprocal relations, as the outcome of its relationship with the environment. Every organism reacts in ways that are advantageous to the functioning of its life processes. "If it gets into hot water, it takes measures to get out again, and the same is true if it gets into excessively cold water. If it encounters an injurious chemical substance, it at once changes its behavior and escapes. If it lacks materials for its metabolic processes, it sets in operation movements which secure such material, suspending these movements when the lack is fully supplied. If it lacks oxygen for its respiration it moves to a region where oxygen is found. If injured, it flees to safer regions." (H. S. Jennings, *The Method of Regulation in Behavior and in Other Fields.* Journal of Experimental Zoology, November, 1905.) The continued existence of an organism depends upon harmony being preserved between changes in the environment and changes within the organism. Anything injurious to the organism produces changes in behavior until a favorable condition is reached. In con-

ditions that are entirely favorable there is no need for a change in behavior. A change in behavior takes place only when there is some interference with the life process.

Out of this situation has developed that essential characteristic of all living beings—their power of adaptability. All living things in order to maintain themselves, are forced into processes of adaptive behavior, and variations within an organism arise in accordance with this requirement. The variety and complexity of environmental conditions require subtle modifications within the organism to meet the exigencies of the diverse circumstances to which it is subjected. Organisms are able to make adaptive changes in behavior because of that characteristic common to all protoplasm known as plasticity. Lower forms of life have only a limited ability to adjust themselves to their surroundings. If changes in the environment are too sudden or too great, the organism dies. The essential conditions of life therefore put a premium upon the better and better adaptation of the organism to its environment. This necessity for a more adequate adaptation of life to environment has given rise to increasing elaboration of structure in the scale of animal life. Organisms that vary in such a way as to make them unfitted to carry on their life functions are eliminated; those which improve their functioning through improved structure survive and produce others after their kind.

The struggle of an organism for more adequate functioning involves an effort to control its environment; elaboration of structure contributes to increased control of the environment by increasing the precision of movements; on the other hand it tends to restrict the form of movement to certain types. An organism which has adopted some special type of behavior becomes unadapted to other behavior. It develops structures under the influence of its adaptive behavior that make it difficult for it to react in other than one way. After a time it loses all tendency to react in other ways owing to the structural changes it has undergone. Complete specialization of structure leads to a condition of stability in the relationship between the organism and its

environment. The perfection of mechanism is unfavorable to further development. Animals become committed to one form of life and in so doing sacrifice their plasticity. Natural selection, therefore, while it favors variation of structure, also favors the persistence of plasticity, since plasticity is a prerequisite to growth. An organism to retain its plasticity must have the power of making over its environment in accordance with its own needs. The increasing control given by increasing elaboration of structure enables organisms to deal with an environment which grows constantly more complex, more varied and more remote in time and space. A species which can adjust itself to only a few elements of its environment is less efficient than one which has diverse relationships and an extensive range of possible adaptations. The world of a protozoan is a drop of water; it can move but a short distance and distinguish but a few objects; the higher animals range over a wide territory and become acquainted with a great variety of objects; man lives in a world which is bounded by the most distant star, and which stretches back in time to ages before recorded history.

The Evolution of the Regulatory System.—Regulation signifies any kind of reaction of the organism which reëstablishes the normal state of functioning. The securing of an effective method of regulation is therefore a matter of supreme importance to life. As we progress up the scale of life, we see that in the elaboration of structure function develops from a generalized to a specialized condition. The one-celled organism responds as a whole to stimulus. Gradually in the differentiation of structure we see that certain cells are set apart for receiving stimuli, and others for responding to them. There is then necessity for some sort of connection between these two sets of cells, and still other cells form a line of connection to transmit the stimulus from the receiving cells to the responding cells. Such, in general, is the mechanism constituting the rudimentary nervous system of lower animals. Once established, such a system dominates the organism since it forms

an apparatus by which the inner processes are kept in harmony and the whole organism the better equipped to make adaptive movements. From this simplest form of mechanism has been gradually evolved the elaborate structure of the nervous system with all its varied and highly specialized functions. "A study of the comparative anatomy of the nervous system shows that its form is always correlated with the behavior of the animal possessing it. The simplest form of nervous system consists of a diffuse network of nerve-cells and connecting fibres distributed among the other tissues of the body. Such a nervous system is found in some jelly-fishes and in parts of the sympathetic nervous system of higher animals. Animals which possess this diffuse type of nervous system can perform only very simple acts, chiefly total movements of the whole body or general movements of large parts of it, with relatively small capacity for refined activities requiring the coöperation of many different organs. But even the lowest animals which possess nerves show a tendency for the nervous net to be condensed in some regions for the general control of the activities of the different parts of the body." (C. J. Herrick, *Introduction to Neurology,* pp. 28–29.)

By the possession of a highly organized nervous system a multitude of activities may be made to work together in unity for the welfare of the whole organism. In the lower animals there is only one course which the stimulus can take; as the neural processes become more complex, the path from stimulus to response is increasingly roundabout. If the stimulus can go by only one route the organism can never learn to discriminate between the response it is able to make and some other possible response. A highly developed adjusting mechanism enables the organism to select its present stimulus with reference to past experience and thus provide more adequately for the future.

The supreme place in nature attained by man is due to the progressive evolution of the nervous system. In purely physical respects the human body is inferior to that of other animals. It is not through superior physique but through ability to direct the activities of the body that man excels

in the struggle for existence. This infinitely elaborated control system enables the human organism not only to respond appropriately to stimuli, but to order its behavior through an infinite series of responses, each determined by a preceding stimulus. From the biological point of view the human brain is the highest expression of an organizing system for the purpose of adaptation. The possession of a brain constitutes the greatest safeguard for success in the struggle for existence.

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The Psychological Basis

The life process is essentially a unit. To consider it under two categories, the biological and the psychological, is to run the risk of suggesting a separation where none exists.

The physiological and the psychical are merely two aspects of the same thing separated here only for convenience in discussion.

Just how the conscious processes came to be, remains part of the mystery of the origin of life itself. Whatever their origin, the important fact is that they, like every other characteristic of living matter, developed out of the struggle for more effective functioning, and that each step in their elaboration has been regulated by the general evolutionary process of more complex and effective forms out of simpler and more general forms. From the evolutionary point of view consciousness is a superior device for securing adaptation; it advances life more quickly, more economically, and more effectively than unconscious processes could do. The value of consciousness in the struggle for existence is self evident. An animal which reacted in a certain way to its environment and continued doing so, no matter how disastrous the results, would run the risk of annihilation. Therefore, any interference with the functioning of the life processes gives rise to changes in behavior in even the lowest organisms. This change in behavior is at first, for the most part, automatic, and highly subject to chance occurrence. Yet in the organism's choice of an environment which furthers its life processes, and in indifference to, or rejection of, that which does not, we have the essence of consciousness.

For an animal to be subject to the changes in its environment is very precarious, and it is to its interest to gain control of its environment and thus render itself more secure. As we ascend the animal scale, therefore, we find that instincts are not rigid, but are capable of being modified to suit varying circumstances. Inherited modes of action are modified by the experience of the organism. Even the lowest organisms do not always react in the same way to a given stimulus. The response may depend upon a number of inner states or changes. As an animal profits by its past experience in adjusting its response to a present stimulus, we are justified in saying that it has undergone a conscious process, that its past experience is somehow

brought into relation with its present situation and influences behavior. In the higher animals a very simple stimulus may give rise to a very complex response. The higher the type of organism the greater the variety of responses which may be called forth, and the greater the power of inhibition, the balancing of one possible stimulus against another, and the choice of the most advantageous one. We see, therefore, as we ascend the animal scale a growing tendency toward the regulation of action for the achievement of more and more clearly realized ends. The more an animal is able to look ahead and, on the basis of past experience, to manipulate the elements of its environment so that desired results are brought about, the more secure it is. The more an animal is able to predict different futures for itself and to choose the proper course of action, the greater its chance of survival. The only way that an organism can control its future is by modifying its present environment through its responses. Therefore, wherever we see conscious activity at work we find attempts being made to make over the environment for the more efficient performance of life functions. As we pass from lower to higher forms of life we see that animals participate in shaping the course of their actions, and that inherited modes of reaction are more and more modified by experience. All of this means the growth of intelligence.

Intelligence once having been established as a factor in evolution, it comes to assume a rôle of ever increasing importance. Competition between the intelligence of different animals in their struggle for existence gives it constant impetus. The animal with superior mental equipment has an immense advantage in being able to meet a situation in more than one way, and to deal with new situations in a complex and variable environment. As soon as intelligence has been developed so that a slight variation in it is more useful than a variation in physical structure, such variation will be selected, and physical superiority gives way to the development of intelligence. If we compare the highest animals with the lowest, we can see the tremendous development of effective forms of behavior due to the development

of the conscious processes. With the evolution of man, physiological variation has ceased, but psychical variation has proceeded rapidly.

The foregoing discussion of animal intelligence has seemed to put a high valuation upon the development of the animal mind. However, if we compare the highest animals with even the lowest tribes of men, we see the great gap which marks the dividing line between man and the brute creation. This need not lead us to suppose, however, that the human intellect is something different in kind from the animal mind. Though infinitely more complex, it may conceivably be looked upon as the last and most complex term in a series of evolutionary changes, to which reflex action, instinct, and intelligence directly lead. The special superiority of each animal species below man has been gained by surrendering the possibility of advance along other lines. The range of possible reactions to a given stimulus is limited, and repetition of reaction brings about a perfection of mechanism comparatively soon after birth, which precludes further development. Acquired ability therefore has its limitations in the animal world.

The mind of man may be looked upon as a superior organ of control, designed to keep track of a great multiplicity of environmental factors, to balance them up with reference to activity, and thus act as an effective instrument in subordinating the environment to its own purposes. Thinking is not a single process: it represents rather an organization of processes working together to evaluate activity with reference to a highly complex environment, and thus to select from a number of possible responses the response which will be most successful in controlling the environment not only in the present but in the future. The evolutionary point of view makes it clear that the various faculties such as sensation, memory, imagination, reasoning and the like, each of which was regarded by the older psychologists as distinct in itself, are simply various aspects of a vast complex of conscious processes working together to enable the human species to deal effectively with an infinitely complex and varied environment. By means of the working together

of this elaborate mechanism the human mind is able to select from the countless stimuli presented to it those which need attention for the advancement of the organism, to organize its various resources, and thus to respond in appropriate and effective ways. Through sensations we receive reports indicating the condition of affairs with reference to which we have to act. In a complex situation the reports are diverse, and contain seemingly incompatible elements. The mind is thus confronted with a problem and the demands for its solution determine the nature of the conscious processes employed. The mind is not merely an organ for receiving stimuli; it is also a recording apparatus, storing up valuable impressions which may be recalled at a future time in association with others, for the solution of a problem. This characteristic of mind we call memory. Habit is a path of preferred conduction between stimulus and response due to the repetition of similar experiences. It quickens reaction, and by making part of the mental process automatic lessens fatigue, thus releasing consciousness for more important phases. Through imagination phases of experience not present to the senses can be realized, details of past experiences can be combined in new and original ways, tentative ways of meeting a situation can be projected. Through the exercise of judgment the suggestions for meeting the situation can be evaluated, those irrelevant rejected, and those relevant selected. As a result of this complex process response follows in the form of action.

It is by means of this marvelously complex organization of conscious processes that man has escaped from routine existence, that he is able to meet new situations with ingenious solutions, that experience is being constantly reconstructed and continuity in behavior established. Through it man has secured control of the earth and transformed it into a human world.

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The Significance of Childhood.—The human infant is born more helpless than the young of any other animal and its time for coming to maturity is relatively very long. At first this might seem to be a disadvantage in the struggle for existence. Modern scientists have shown, however, that it is, on the contrary, a powerful asset having great influence on human supremacy. All creatures are endowed at birth with innate capacities essential to the preservation of the species. The young of most animals inherit a fairly perfect instinctive mechanism which comes to maturity soon after birth. Although the perfection of this instinctive equipment makes for efficiency along the lines for which it was designated, the very perfection of the mechanism precludes development beyond the limits prescribed. It does not permit of great variation of

response. Man's nervous system, on the other hand, is more plastic than that of other animals. The human infant is born with a very unspecialized instinctive equipment; it is little more than a bundle of original tendencies modifiable to almost any degree. It has, however, strong and urgent impulses to action. This is a combination that makes for growth. With an original endowment that is general in character, and through the constant demands of specific situations, intelligence is developed rapidly and adaptations are made to new conditions, as these present themselves. Because the child starts out with few instinctive modes of behavior definitely determined in advance, his powers may be continually modified and organized through his own specific experiences into the kind of equipment best adapted to advancing his individual needs.

In the human infant, then, we have the creature which though seemingly helpless, is really best adapted to developing adequately for a highly complex environment. This point of view puts a high positive value upon childhood; it is a great powerful human resource to be guarded and conserved. John Fiske was the first to make clear the significance of infancy in relation to human supremacy.

In the *Meaning of Infancy* he says: "What is the meaning of the fact that man is born into the world more helpless than any other creature, and needs for a much longer season than any other living thing the tender care and counsel of his elders? It is one of the most familiar of facts that man, alone among animals, exhibits a capacity for progress. That man is widely different from other animals in the length of his adolescence and the utter helplessness of his babyhood, is an equally familiar fact. . . .

"Let us now take a long leap from the highest level of human intelligence to the mental life of a turtle or a codfish. In what does the mental life of such creatures consist? It consists of a few simple acts mostly concerned with the securing of food and the avoiding of danger, and these few simple acts are repeated with unvarying monotony during the whole lifetime of these creatures. . . . Among slightly teachable mammals, however, there is one group more teach-

able than the rest. Monkeys, with their greater power of handling things, have also more inquisitiveness and more capacity for sustained attention than any other mammals; and the higher apes are fertile in varied resources. . . . At some remote epoch of the past—we cannot say just when or how—our half-human forefathers reached and passed this critical point, and forthwith their varied struggles began age after age to result in the preservation of bigger and better brains, while the rest of their bodies changed but little. . . .

"But this steady increase of intelligence, as our forefathers began to become human, carried with it a steady prolongation of infancy. As mental life became more complex and various, as the things to be learned kept ever multiplying, less and less could be done before birth, more and more must be left to be done in the earlier years of life. So instead of being born with a few simple capacities thoroughly organized, man came at last to be born with the germs of many complex capacities which were reserved to be unfolded and enhanced or checked and stifled by the incidents of personal experience in each individual. . . . Here at last there had come upon the scene a creature endowed with the capacity for progress, and a new chapter was thus opened in the history of creation." (John Fiske, *The Meaning of Infancy*, pp. 1–13.*)

A full realization of the far-reaching implications of childhood brings with it as a necessary complement an appreciation of the real meaning of play in the life of the child. Child's play is not to be regarded lightly; it is not a relaxation nor a diversion. Nature's purpose in implanting the play impulse is a serious one and the child, as anyone can see by watching, applies himself seriously to carrying it out. Karl Groos summed up the fundamental biological significance of play in these words: "Children do not play because they are young; they are young in order that they may play." Play gives exercise to the deep-

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seated motor instincts of the child. Under the powerful stimulus of the play impulse the child is driven to incessant action; and thus develops in an experimental way his own methods of making adaptations to the infinitely varying conditions of his life. By this method the crude, general, original endowment of the child is, through endless adaptations, converted into a more specialized form more adequately suited to his particular needs. Impelled by his eager spontaneous curiosity about his surroundings, following the leadings of a broad and catholic interest in persons and things, the child is busy laying a wide and secure foundation of first-hand experiences for understanding all phases of his complex environment. He is absorbed in getting through an all round contact with persons and things that wide range of acquaintance with his physical and social environment which will serve as the foundation for the more specialized pursuits of later life. Play enables the child to realize his powers through putting them to a variety of uses. It is no doubt to this fact that the distinguishing characteristics of the play impulse are due—interest in play for its own sake, with a corresponding disregard for the product; the wide range of interest, and the quick shift of attention from one thing to the next; the incessant demands of curiosity; the desire to handle things; the interest in doing the same thing over and over again.

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The Social Basis

The great distinguishing feature of human adaptation in contrast to that of the animal world is its social character. Sociological considerations have to do with the ways in which natural evolution has been modified in the life of man, and in particular with the modifications brought about about by group life. Life in society is not, of course, entirely confined to man. It is the rule rather than the exception in the animal world. Among the expedients into which the struggle for existence has forced animals, the most effective is that of living together in communities. The animals that can best avail themselves of the advantages of association multiply their individual forces and attain a safety that no isolated animal could ever achieve. The non-gregarious animals are therefore gradually outnumbered by those that are social. As we study animal life we perceive that although there is an immense amount of warfare among different species, there is a great deal of mutual support for defence among animals of the same species. This coöperation shows a great variety of forms ranging all the way from the mere gregariousness of animals who temporarily associate themselves into herds and flocks the better to protect themselves against their enemies; to the highly organized group life of such animals as the ants and bees, who form a highly interdependent and unified community. The conditions of life tend to keep animals of the same species together. Social life of a kind is therefore a direct outcome of the life process.

There is a vast difference, however, between the social life of even the most advanced animals and that of the most primitive tribes of men. Among animals group life is developed only so far as it will satisfy animal needs; since their needs are strictly limited, group life is likewise limited and must always remain so. Social relationships among animals living in even a highly organized community are

upon a strictly physiological basis. Division of labor often brings about changes in structure so that individuals are unable to exist away from the community of which they are part. Such a condition of affairs makes for a static community life; social evolution under these circumstances is impossible. Human association, on the contrary, is psychical; it is the result of interstimulation and response on the part of relatively independent individual units. Man satisfies his elemental needs through effort, each satisfaction opens up new wants, and new conditions present new problems calling for new and original solutions. Thus are set up two indeterminate, interacting series of developments; on the one hand increasing wants, and on the other an ever increasing variety of natural resources. In his effort to satisfy his wants the advantages of association and coöperation soon became apparent to primitive man. Thus came into being a psychic interaction that might be called social in the real sense of the word. This psychic interstimulation was made possible by the possession of language by which the ideas of one person could be transmitted to another and more effective forms of coöperation continually evolved. When men thus united upon the earth, a new type of functional and structural changes was set in motion; social evolution became possible.

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The Evolution of Occupations

Man's existence, like that of the rest of the organic world, is dependent upon his own exertions. Animals are forced to get their food wherever they can find it, and to pass from one environment to another to obtain it. Primitive man was also a migrating animal, dependent upon what nature had to offer him for support, and obliged to wander to a new environment when he had exhausted the food supply of the previous one. Though early man was inferior to other animals in various physical respects, he possessed a type of psychical equipment which gave him an immediate advantage in the struggle for existence, and was the means by which he gained his supreme position in the organic world. ". . . I ask you . . . go with me to that early day when the first being, worthy to be called man, stood upon this earth. How economical has been his endowment. There is no hair on his body to keep him warm, his jaws are the feeblest in the world, his arm is not equal to that of a gorilla, he cannot fly like the eagle, he cannot see into the night like the owl, even the hare is fleeter than he. He has no clothing, no shelter. He had no tools, no society or language or arts of pleasure, he had yet no theory of life and poorer conceptions of the life beyond. The road from that condition to our own lies next to the infinite. The one endowment that this creature possessed having in it the promise and potency of all future achievements, was the creative spark called invention." (O. T. Mason, *Birth of Invention,* Smithsonian Institution, 1892, p. 604.)

The assumption of the erect attitude, and the consequent liberation of the hands for specialized movements, gave primitive man an immediate superiority over all other animals. It not only enabled him to hurl weapons while escaping from his enemies, but to break stones and other loose objects for definite purposes. Animals have only a limited power outside of their own bodies for strengthening themselves in the struggle for existence, but the free use of the hand has had a great reflex upon developing the brain of man, stimulating it to devise ever better methods of satisfying his expanding needs. He began supplementing the power of the body with simple tools; he learned to lengthen his arms by means of poles, to make rakes instead of using his hands, hooks instead of fingers, and so on, and gradually evolved for himself a wealth of extra organs from his environment. At first these were mere adaptations of materials half formed by nature—branches of trees, stones, bones of animals, shells, and so on. By these means man gradually learned to exploit his own environment instead of being forced from one place to another in search of food. Instead of seeking a cave or retiring to a more congenial climate, he learned to make his environment serve him. He built houses and warmed them, he dressed in the furs and skins of certain animals and domesticated others, he cultivated plants, and exercised his ingenuity in devising utensils for his home, and implements for the advancement of his domestic life.

The fundamental difference between animal industry and that of man lies in the fact that animal industry is ruled by instinct and therefore does not progress from generation to generation, while human industry is governed by inventive genius and is therefore capable of indefinite improvement. The human possibility of transmitting ideas by means of language is also another powerful factor in the development of occupations. "The two outer traits in which the distinction between the minds of animal and of man finds expression are the existence of organized articulate language in man, and the use of utensils of varied application. Both of these are common to the whole of

mankind. No tribe has ever been found that does not possess a well organized language; no community that does not know the use of instruments for breaking, cutting, or drilling, the use of fire and of weapons with which to defend themselves and to obtain the means of living. Although means of communication by sound exist in animals, and although even lower animals seem to have means of bringing about coöperation between different individuals, we do not know of any case of true articulate language from which the student can extract abstract principles of classification of ideas. It may also be that higher apes employ now and then limbs of trees or stones for defence, but the use of complex utensils is not found in any representative of the animal series. Only in the case of habitations do we find an approach to more complex activities, which, however, remain absolutely stable in each species—as we say, instinctive—and bear the evidence of any individual freedom of use, which constitutes the primary character of human inventions. The origin of the instinctive activities of animals which lead to the construction of complex mechanical devices is still a hidden secret; but the relation of the individual of the species to these activities differs from that of man to his inventions in the complete lack of freedom of control." (F. Boas, *The Mind of Primitive Man*, pp. 96-97.*)

Thus we see as one aspect of the evolution of industry a gradual elaboration of industrial processes and variation in tools from the mere adaptations of bones and stones made by primitive man, to the wonderful specimens of modern machinery, as a result of the inventions made by man, in an effort to satisfy his ever expanding needs. Occupations have progressed from the primitive arts of hunting and fishing to agriculture, mining and manufacturing. The resources of one region have been increased by bringing commodities from places where they are superabundant to places where they are needed. This development of occupations has taken place in a haphazard way in accordance with the predominating needs of the time. "Now the

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exploitation takes the form of discovering the species of plants that will respond most readily to man's care; again, it is a search for earth's hidden secrets; at one time it is an attempt to find the most favorable routes of travel or the most advantageous sites for trade; at another it is a search for the choicest soils which can be made subject to man's needs by the use of new instruments and the means of maintaining collective activity. It may be a search in the sky for the means of determining the approach of a new season or a means of guiding the traveler at sea; perhaps it is a series of experiments with new materials in order to bring about desirable features accidentally revealed; and sometimes it is an attempt to discover different forms of motive power or the means of applying the same." (K. E. Dopp, *The Place of Industries in Elementary Education,* pp. 66–67.)

In the early days every family was its own "butcher, baker, and candlestick maker." Every household had to meet all the economic requirements of its members with its own labor. Often a single individual carried on the whole round of activities from the search for the raw materials to the use of the finished product. This situation in which the whole burden of the processes from production to consumption fell upon one person, was rich in opportunities for the exercise of inventive ingenuity. It demanded intelligence and versatility, and dexterity in execution. Moreover the connection between production and use was obvious, and the value of labor estimated accordingly. The whole set of processes from production to consumption received its impulse and direction from the needs of the consumers. Occupations, in short, had a highly functional character. The advantages of coöperation and the division of labor according to natural aptitudes soon, however, made themselves manifest, and combined action in hunting, fishing, and for defence early became the rule. With the advance of social life in complexity, labor became more and more specialized. Each successive specialization, though it tended to weaken the pleasurable emotional reflex resulting from the close union of production and consumption, gave

increased efficiency in production, and was therefore encouraged. The progress of civilization with its consequent increasing complexity of the industrial processes is marked by a greater and greater distance between the producer and the consumer, and therefore by a greater disassociation of wholesome emotional reflexes from labor. The matter has been further complicated by the institution of slavery. In the days of slavery labor was compulsory. It became distasteful to the master class because of its association with an inferior class. It was irksome to the slave because the problem was external to his own interests and needs. He was no longer free to choose the conditions under which he worked. Labor which was originally a free expression of the whole of society became the forced expression of certain members. Succeeding stages of culture have tended to perpetuate the distinction between classes, and in the course of time society has come to be sharply differentiated into two great social classes: a wealthy leisure class, who, though they may engage in a variety of pursuits, choose those which are non-industrial, and the "lower" class, the industrial workers, who carry on the work of the world at the command of the wealthy.

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The Influence of Environment upon the Development of Social Life

Man, like all organic life, is, as we have seen, dependent upon his environment for his means of subsistence. All material progress depends upon the interaction of man and his environment. "Every clan, tribe, state or nation includes two ideas, a people and its land, the first unthinkable without the other. . . . A land is fully comprehended only when studied in the light of its influence upon its people and a people cannot be fully understood apart from the field of its activities. More than this, human activities are fully intelligible only in relation to the various geographic conditions which have stimulated them in different parts of the world. . . . the modern society or state has grown into every foot of its own soil, exploited its every geographic advantage, utilized its geographic location to enrich itself by international trade, and when possible, to absorb outlying territories by means of colonies. The broader this geographic base, the richer, the more varied its resources, and the more favorable its climate to their exploitation, the more numerous and complex are the connections which the members of the social group can establish with it, and through it with each other; or in other words, the greater may be its ultimate historical significance. (E. C. Semple, *Influences of Geographic Environment,* pp. 51–53.*) By

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virtue of his higher intelligence man alone among animals has the power to react upon his environment in a way to render it more beneficial to himself. Primitive man was very dependent upon his physical environment; he was able to form only a few and intermittent relations with any one place, and was therefore forced to be a wanderer; his social organization was, as a consequence, weak and loosely held together. Environmental conditions have given direction to the economic instincts of man and thus have indirectly affected social life. Social life began in regions where raw materials abounded and where food and shelter could be obtained through a medium amount of exertion. By his inventive genius, expressed in his industrial development, however, man has steadily advanced from subjection to his physical environment to control of it. He has decided to what environment he wished to be subjected, and then deliberately sought to create such an environment. "The relation of geographical conditions to national growth changes, and with the upward progress of humanity the ways in which Nature moulds the fortunes of man are always varying. Man must in every stage be for many purposes dependent upon the circumstances of his physical environment. Yet the character of that dependence changes with his advance in civilization. At first he is helpless, and, therefore passive. With what nature gives in the way of food, clothing, and lodging he must be content. She is strong, he is weak; so she dictates his whole mode of life. Presently, always by slow degrees, but most quickly in those countries where she neither gives lavishly nor yet presses on him with a discouraging severity, he begins to learn how to make her obey him, drawing from her stores materials which his skill handles in such wise as to make him more and more independent of her. He defies the rigors of climate; he overcomes the obstacles which mountains, rivers, and forests place in the way of communications; he discovers the secrets of the physical forces and makes them his servants in the work of production. But the very multiplication of the means at his disposal for profiting by what Nature supplies brings him into ever closer and more com-

plex relations with her. The variety of her resources, differing in different regions, prescribes the kind of industry for which each spot is fitted; . . . Thus certain physical conditions, whether of soil or of climate, of accessibility or inaccessibility, or perhaps of such available natural forces as water power, conditions of supreme importance in the earlier stages of man's progress, are now of less relative moment, while others, formerly of small account, have received their full significance by our swiftly advancing knowledge of the secrets of Nature and mastery of her forces. (J. Bryce, *The American Commonwealth,* Vol. 2, p. 450.*) Although physical environment influences social life, it does not determine human development. Every invention that is made alters in some degree the existing social environment; with every step of human progress, economic and social forces come to play a more and more important part.

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The Relation of Occupations to the Development of Social Life

The foregoing discussion has indicated the relationship between occupations and the development of civilization. Industry of one kind or another has been a dominant force

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in the upbuilding and maintaining of social structures. "The activities of life are of necessity directed to bringing the materials and forces of nature under the control of our purposes; of making them tributary to ends of life. Men have had to work in order to live. In and through their work they have mastered nature, they have protected and enriched the conditions of their own life, they have been awakened to the sense of their own powers—they have been led to invent, to plan, and to rejoice in the acquisition of skill. In a rough way, all occupations may be classified as gathering about man's fundamental relations to the world in which he lives, through getting food to maintain life; securing clothing and shelter to protect and ornament it, and thus, finally, to provide a permanent home in which all the higher and more spiritual interests may center." (John Dewey, *The School and Society,* pp. 135–136.) Economic facts are thus seen to constitute the sub-structure of society which conditions its very existence. Economic conditions have always controlled social conditions. So long as man could satisfy his needs without the help of his fellows, isolated production was the rule; but as the economic struggle became more severe utilitarian motives led to co-operation. Economic necessity thus determined the original forms of social life out of which higher forms were gradually developed. The important factor in social change is therefore the economic factor. Economic considerations deal with only one class of human wants, and there are many other classes of social wants connected with the development of a state to any degree of social advancement; but in general social relations between people have been largely determined by economic considerations. "The existence of man depends upon his ability to sustain himself; the economic life is therefore the fundamental condition of all life. . . . To economic causes, therefore, must be traced in last instance those transformations in the structure of society which themselves condition the relations of social classes and the various manifestations of social life." (E. R. A. Seligman, *The Economic Interpretation of History,* p. 3.)

The economic and industrial aspects of society show "the great advances in civilization that have come through those manifestations of intelligence which have lifted man from his precarious subjection to nature, and revealed to him how he may make its forces coöperate with his own purposes." We see therefore that "The industrial history of man is not a materialistic or merely utilitarian affair. It is a matter of intelligence. Its record is the record of how man learned to think, to think to some effect, to transform the conditions of life so that life itself became a different thing. It is an ethical record as well; the account of the conditions which men have patiently wrought out to serve their ends." (John Dewey, *The School and Society,* pp. 156–157.)

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The Relation of Art and Science to Occupations

Art has always been an important factor in community life and in determining progress. Grosse in his *Beginnings of Art,* says: "There is no people without art . . . even the rudest and most miserable tribes devote a large part of their time and strength to art—art, which is looked down upon and treated by civilized nations, from the height of their practical and scientific achievements, more and more as idle play. And yet it seems wholly inconceivable, from the point of view of modern science, that a function to which so great a mass of energy is applied should be of no

consequence in the maintenance and the development of the social organism; for if the energy which man devotes to æsthetic creation and enjoyments were lost in the earnest and essential tasks of life, if art were indeed only idle play, then natural selection should have long ago rejected the peoples which wasted their force in so purposeless a way, in favour of other peoples of practical talents; and art could not possibly have been developed so highly and richly as it has been . . . the differences between primitive and higher art forms appear to be more of a quantitative than a qualitative sort. The emotions represented in primitive art are narrow and rude, its materials are scanty, its forms are poor and coarse, but in its essential motives, means and aims the art of the earliest times is one with the art of all times . . . the most efficient and most beneficent effect which art exercises over the life of the people consists in the strengthening and extension of the social bonds to which it contributes. . . . As science enriches and elevates our intellectual life, so art enriches and elevates our emotional life. Art and science are the two most powerful means for the education of the human race. Thus art is no idle play, but an indispensable social function, one of the most efficient weapons in the struggle for existence; . . . A consciousness of the importance of art to social welfare, has moreover, existed in man in all ages. . . . We have the right to demand of art that it work in the direction of a social purpose." (E. Grosse, *The Beginnings of Art,* pp. 307-315.*)

We must not lose sight of the vital relationship between art and ordinary occupations in the history of the race. Industry has had a powerful influence in developing arts of all kinds. The industry and inventive genius of early man was rewarded by leisure which gave opportunity for expression to the stores of energy released. "It is in such periods as these that we find activities similar in kind to those performed at other times, but different in their end. Free from the conditions imposed by the real hunt, the savage plays he is hunting, and we have the beginning of the

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dance. . . . At other times man may expend his surplus energy in the search for bright and shining objects, which he may pierce and string, and we have the beginning of dress and decoration; or he may trace in the sand, or on the walls of his cave, or on the bones of animals he has slain, mere lines at haphazard, until by a happy coördination he produces a semblance to some familiar form, and we have the beginning of drawing. It would be easy to multiply instances of this kind; but these are sufficient to illustrate the fact that the beginnings of art depend upon leisure and an accumulation of energy, and that the art instinct, which is bound up at first with the workmanship instinct, becomes free only as less strenuous conditions of life afford room for its manifestation." (K. E. Dopp, *The Place of Industries in Education*, pp. 24–25.*)

In the early days of art development no sharp line divided the fine from the useful arts. Use and beauty were regarded as one; their separation has been brought about largely by commercial production. Any useful object—a piece of pottery, a bit of weaving, a basket, an implement for hunting—took on an art value when the maker sought to objectify by means of it his own personal thoughts and feelings. "Everybody who has not a purely literary view of the subject recognizes that genuine art grows out of the work of the artisan. The art of the Renaissance was great because it grew out of the manual arts of life. It did not spring up in a separate atmosphere, however ideal, but carried on to their spiritual meaning processes found in homely and everyday forms of life. . . . The merely artisan side is narrow, but the mere art, taken by itself, and grafted on from without, tends to become forced, empty, sentimental. . . . All art involves physical organs—the eye and hand, the ear and voice; and yet it is something more than the mere technical skill required by the organs of expression. It involves an idea, a thought, a spiritual rendering of things; and yet it is other than any number of ideas by themselves. It is a living union of thought and the

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instrument of expression." (John Dewey, *The School and Society,* pp. 77–78.*)

Science and occupations are also organically interrelated. "The history of culture shows that mankind's scientific knowledge and technical abilities have developed, especially in all their earlier stages, out of the fundamental problems of life. Anatomy and physiology grew out of the practical needs of keeping healthy and active; geometry and mechanics out of demands for measuring land, for building, and for making labor-saving machines; astronomy has been closely connected with navigation, keeping record of the passage of time; botany grew out of the requirements of medicine and agronomy; chemistry has been associated with dyeing, metallurgy, and other industrial pursuits. In turn, modern industry is almost wholly a matter of applied science; year by year the domain of routine and crude empiricism is narrowed by the translation of scientific discovery into industrial invention. The trolley, the telephone, the electric light, the steam engine, with all their revolutionary consequences for social intercourse and control, are the fruits of science." (John Dewey, *How We Think,* pp. 167–168.) Every advance in industry depends upon the successful application of a scientific formula, and makes clear new needs, giving rise to new scientific discoveries. The scientist wrests from nature the secret of her forces; the artisan utilizes the knowledge thus gained, and moulds it into forms of use and beauty better adapted to the needs of human life. Thus related science, art, and industry have become a fundamental motive force of social advancement. "What *is* science? We are too apt to think of it merely as something ponderous, kept in equally ponderous books. But it is much truer to think of it not as lifeless printed material, but as something living in the mind and influencing one's work. For science is born anew in the deliberate will and intention of each of us when we succeed in thinking about the principles of our work in a clear, logical,

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and systematic way, and courageously put our conclusions to the test of experiment; and the so-called sciences are the written records of such thinking, only more extensive, clear, systematic and consistent, and more true to reality because they have been tested by countless experiments and experiences in the race . . . all theory, all knowledge, all the broad groups of sciences, originally sprang from the experience gathered by man from one or other of his numerous occupations. Thinking has arisen from doing; thought from action. Do not imagine that science floats, as it were, in the clouds, serenely isolated from the hum and bustle and occupations of the busy world, and developing in some mysterious manner of its own. The more vividly you realize this great truth, that science ultimately sprang, and is continually springing, from the desires and efforts of men to increase their skill in their occupations by understanding the eternal principles that underlie all dealing of man with Nature and of man with his fellow-men (that is, the manual and mental occupations, industry, trade, the professions, and so on), the more vividly will you see the deep importance of science to all occupations. You will then recognize the other side of the relation; for every action there is always a reaction. If science ultimately has sprung from, and is continually springing anew from, occupations science has repaid the debt both by rendering those who follow her teaching more skilled in their occupations and by actually giving rise by her discoveries to absolutely new types of occupations. One of the great conditions of human progress is this unceasing reciprocal relationship between occupation and science, each constantly producing and being produced by the other." (B. Branford, *Science and Occupation,* London Journal of Education, June, 1904, p. 435.*)

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The Evolution of the Scientific Method of Thinking

Because of his peculiar psychological make-up, man was early led to methods of investigation and experimentation in order to solve the environmental situation. The mental characteristic which distinguishes man from the lower animals is his ability to analyze his experience, to separate successful elements from unsuccessful, and to apply the valuable results to new situations as they arise. An animal has, compared with man, little ability to profit by past experience, little ability to learn. Even primitive man constantly made use of trial by experiment and reasoning by analysis. His limitations were largely due to the fact that through the narrow range of his experience he had few facts to reckon with. He early began reasoning from his observations and evolving theories of the nature of things, which, though crude, were intelligent generalizations of experience. In the course of his inquiries he not only accumulated valuable stores of knowledge, but learned more and more successful and economic methods of obtaining his facts and of testing their validity. Through experience he learned how to learn. Had man not had this power, knowledge would have been nothing more than a memory of past incidents, and would have given us no clue to the solution of present problems, or power to predict the future. The possibility of progress under such conditions is highly problematical.

The earliest use of experience as a guide to action was probably not very conscious. At first events were thought of as individual, but gradually by the repeated association

of certain events with certain others, the sequence was seen to be not the result of a happy chance, but was observed to be constant. Certain results were seen to flow inevitably from certain antecedent conditions. When it was observed that a certain order of events had been uniform in the past, it was natural to infer that they would remain uniform in the future, and it was possible to regulate his conduct accordingly. Thus through the power of prediction man was able to adjust his actions to future events, to meet new situations successfully, and continuity in conduct was thereby established. This technique of thinking which has been gradually refined and brought under control by man, finds its highest expression in the method of the scientist.

Scientific method, associated as it is in our minds with a particular technique of thinking achieved only by specialists under unusual circumstances, working with peculiar apparatus, is thus seen to be not different in kind, but only in degree from the thinking of the ordinary person. Scientific thinking is not synonymous with thinking about science; such thinking has often been unscientific enough. On the contrary, it is an attitude of mind and a skill that may be employed on any kind of subject-matter. It might be looked upon as thinking that has become unusually conscious of itself and skilled in modes of arriving at conclusions. It is distinguished from ordinary thinking by exactness and by exhaustiveness of treatment. The transition from the ordinary to the scientific attitude of mind is made when one ceases to take things for granted and assumes instead a disposition to test opinions by inquiring into facts. The person who, through a process of comparing, inferring, and testing sees the relationships between facts, is using scientific method. It is the want of impersonal judgment, and of the accurate assessment of evidence which renders clear thinking so rare, and random and irresponsible judgments so common. The scientific attitude is the dynamic attitude; it regards facts as hypotheses to be discarded as soon as further experience proves them to be untenable. It is only by this process that man has been able to extend his control over the forces of nature. It is

only through the process of continually replacing one formula by another of wider significance that we can understand the real nature of the universe. The field of science is unlimited. It is only when every phenomena has been examined and classified that the mission of science will be completed. It can never end until man ceases to be, until development ceases.

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The Evolution of Knowledge

The fundamental sources of movement in society are to be discovered in the primary needs of mankind. They initiate the adjustments to be made between man and nature. Primitive man, in common with all other living organisms, was continually forced into vital relations with his physical environment, and such was the characteristic of his responses to the situations that arose that, from the first, he made attempts to modify and utilize the materials and forces of nature for the maintenance of his life processes. He also began to ponder over the significance of his experiences. Through his attempts to understand his experience and to find out what forces have made the world of experience what it is, he gradually accumulated a stock of useful information about the world in which he lived. The occupations on which he was dependent for life stimulated his quest of knowledge of nature, and each advance

in occupation yielded something to his general store of information. From personal experience he soon grew to have quite a respectable fund of common-sense, everyday knowledge. "He had gained this knowledge under the impulse of his need of food, protection, shelter, and clothing. He was familiar with the habits of all the wild animals of his locality, and with most of the useful and poisonous plants. He was familiar with the topography of the various regions in which he lived and with the special advantages afforded by each. He knew the signs of the weather and the relation of the changing position of some of the heavenly bodies to coming changes in his own activities. He had learned the limitations and the possibilities of the raw materials with which he worked, how to select the best materials for his weapons, implements, and utensils, and how to manufacture and manipulate the same." (K. E. Dopp, *The Place of Industries in Education,* pp. 30-31.) Man at even this early stage had made some progress in the arts and sciences. "In a rude way he was a physicist in making a fire, a chemist in cooking, a surgeon in binding wounds, a geographer in knowing his rivers and mountains, a mathematician in counting on his fingers." However, the vast complex of physical phenomena by which he was surrounded, the evidences of power in the universe, still impressed him with wonder and terror. On the fringes of his matter-of-fact knowledge there gathered a rich cosmological lore, highly dramatic in character, in the form of myth or legend, in which the various forces of nature as yet unaccounted for in work-a-day experience were personified. Many of the primitive rites and ceremonies have to do with this mythical belief, in which thank offerings were made to spirits that were benign, and sacrifices to those that were hostile. These are the two original springs from which the stream of knowledge has flowed through the centuries.

The possession of articulate language by human beings is supremely important, enabling the knowledge of each individual to become the property of the community. Without a ready means of communication the myriad units

who perform their individual tasks would be unable to coördinate their experiences for the common good, and what was discovered by one generation could not be handed on to the next. Knowledge gained by oral language is restricted and unreliable; where it alone is achieved by a social group its transmission is dependent upon personal communication and the validity of memory. When with the invention of written symbols, oral tradition gave way to written records, "the funded capital of civilization" accumulated at a much greater rate, and its transmission to the next generation was the more adequately secured. This possibility of a gradually accumulating store of knowledge by which the experiences of one generation may be contributed to the next is a condition fundamental to social evolution. It constitutes one of the essential superiorities of man over every other animal species. The knowledge possessed by other animals is instinctive, it is not gained through personal experience, and it does not progress from age to age. Man is the only animal with a social tradition. Except for the transmission of knowledge, the work of the past would have had to be done anew by each generation, and man could not have progressed far beyond the satisfaction of his elemental needs. The stage of savagery, therefore, would have been his permanent social status.

For a long time the knowledge gained by early man remained a chaotic mass of isolated facts, gained as the result of many separate experiences with the apparently discrete phenomena of nature, and without apparent order or connection. Gradually, however, with increasing experience, and his ability to analyze his experiences, to note similarities and differences, man was able to make certain deductions as appropriate explanations of his experiences, and this mass of information, formerly haphazard and chaotic, gradually assumed a primitive kind of organization. Particular concrete phenomena were seen to be part of a great orderly relationship. Similar facts were related into a general category; dissimilar facts were separated and combined with those with which they were related. In the evolution of knowledge we see the continuous struggle of

the human mind to reach a more comprehensive and exact formulation of experiences. By more and more methodical examination and systematic inquiry into the characteristics of phenomena, common sense and empirical knowledge have gradually given way to purposeful investigation in which facts have been condensed into general laws and the whole organized according to the best knowledge of the time. Men study a range of facts, they classify and analyze, they discover relationships and sequences and then they describe in the simplest formula possible the widest range of related phenomena. It is in this way, by a process of accretion and elimination that the body of verified knowledge which the human race has accumulated in its long history has been slowly and gradually built up out of experience and organized according to prevailing ideas. The outer margins of knowledge at any given time are thus seen to be the scientific knowledge of the time. As knowledge has accumulated, the frontiers of tested knowledge have been steadily extended through the addition of new truths around their natural centers of attraction. Every generalization has been replaced by a broader hypothesis. On the fringes of this body of knowledge has always dwelt a mixture of truth and speculation—dogmas, myths, superstitions—all those forms of belief which have not yet been subjected to verification in experience, but which none the less exert a potent influence on the minds of the people. Each successive century has put under inquiry such matters as lay within the range of its particular interests, and has modified the classifications of the preceding age. The content of science has thus continuously increased with every increase in man's positive knowledge, and the amount of unverified knowledge has been steadily reduced. If we survey the whole gamut of knowledge we realize that there is implicit in every subject a possible science of the subject, which consists of the organized principles of the field of knowledge represented by that subject, the body of laws and principles which govern that particular set of facts. By the evolution of knowledge from its primitive form to its final form in the sciences, the world of experience is seen

to be governed by universal laws, and what was originally thought by primitive man to be a chaos, is now found to be a cosmos.

This, then, is the general nature of the process by which knowledge has been accumulated by the human race. The important fact to remember is that it is the outcome of the workings of the human mind upon the problems fundamental to sustaining life. Humanity has not accumulated all this vast mass of communicable experience which we call science, without the constant and powerful stimulus of needing that knowledge, either directly or indirectly, for the more efficient pursuit of various occupations.

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The Evolution of Organs of Social Regulation

The life of man in society, like that of other organic species, is a struggle for existence, but it differs from that of animal societies in being a psychical process in which man consciously aims to produce social structures, by means of which the benefits of association may be the more effectively realized. Society carries on its life under the influence of psychical forces brought about by the interaction of minds. In a group of relatively free individuals with a ready means of communication, there is a free and

rapid interchange of psychical impulses. In the give and take of social life mental states are modified. Participation in common experiences tends to produce identical feelings and closely resembling ideas. The social process is therefore a process of assimilation, a process of integrating the ideas and attitudes of the members of a group into an organic whole. The cultural scheme of a community is a composite of the thoughts and beliefs of the constituents, and is represented by its institutions. Solutions to problems worked out by one generation are preserved for the benefit of the next by means of institutions. They become the channels by which the accumulated experience of generations is continuously passed on, thus giving continuity to society and preserving racial achievements. Institutions by their very nature, however, tend to remain fixed; they are the products of past circumstances, while society lives in a rapidly changing environment produced by a multitude of factors interacting upon one another. Hence no set of institutions entirely applies to a present situation; they are in need of constant modification. Social progress comes about through successive changes in the social tradition as represented by institutions, but these changes do not occur until the need of change is felt by a sufficient number of the members of a community. When this point is reached there is a revaluation and revision of the traditional rules governing social relationships. Now the two great sources of influence upon the minds of the members of a community motivating social action, are the point of view arrived at as the result of present experience with the environmental situation, and that which comes from the accumulated experiences of past generations as handed down by institutions. The various constituents of a community are affected in different proportions by these two great classes of influence. The portion of the community most exposed by economic causes to the pressure of changes in the environment seek to make changes in institutions to better their condition; any portion of the community habitually relieved from economic pressure so that it does not personally experience the effects of changes in the environment will

not so quickly see the necessity for changes in institutions. They become the conservative class, traditionally minded, which acts as a check upon social transformation. Between these two extremes lie all possible gradations.

Social progress is thus seen to be an evolutionary process, but it is a process in which the intelligence and will of men must enter. Progress cannot be taken for granted; it is the result of forethought, of the conscious regulation of social affairs. Since society in the past has not been particularly conscious of its own processes, social regulation has followed a more or less blind haphazard course in which inertia has played an important part. Discrepancies between economic demands and the means of meeting them have been allowed to increase until serious maladjustments have resulted, and a more adequate social organization has been secured only after violent social upheavals. Although living within an association, few people have comprehended its nature, and as a result society has been overtaken by changes; it has not understood the means by which social changes might be consciously guided. It is evident that for the proper development of social adaptation, some form of social technique must be worked out by means of which institutions can convey to each generation the benefits of past experience, and yet remain flexible instruments competent to shape progress. This state of affairs can be brought about only when the scientific attitude is assumed in relation to the problems of society. To look ahead, to modify the present with reference to the future, is a prerequisite of an intelligently progressive society. It is only when social life reaches the point where it consciously controls the conditions of its life that rational social advancement is assured.

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The Present Social Situation

The story of civilization is the story of social relationships; it is the story of man's efforts to create more and more effective forms of group life, and to establish agencies by means of which social adaptation may the more effectually operate. During the last century the cumulative effect of the principal forces that have been moulding the modern world have found expression in three inter-related forms: science, industry, and democracy.

The latter half of the eighteenth century and the first quarter of the nineteenth century were periods of great scientific activity. As a result of the vast increase in scientific knowledge and its application to industry, making it possible to utilize natural forces for large scale production, a new industrial era has been inaugurated. Through the centralization of capital, the unit of production has been changed from the family to a compact unit of hundreds of workers, brought together in an especially adapted establishment, provided with the most extensive mechanical equipment. The process of production is analyzed and subdivided into the greatest possible number of parts, and workmen of varying ability are set to work on the different parts simultaneously. This plan of combining workers effects an enormous increase in the output over that which could be produced by the same number of independent workers, since each worker, confined entirely to one job, develops great skill and dexterity in it. As a result we have developed in factory production a highly specialized routine labor adjusted to machinery. The complexity of the processes has necessitated the closest study of technical problems and of conditions making for economy and efficiency of production.

The very perfection of the mechanism of production now threatens, however, to become a menace, since it disregards the human factor involved. Machines were invented as a means whereby human beings might the more effectively satisfy their needs. In modern machine production the relation of means to ends in the relation of the workman to his machine has been entirely reversed. Instead of the worker using his machine for the realization of his own purposes, the machine now completely dominates the operator, tending to make of him a mere appendage which the ingenuity of an inventor has not yet succeeded in devising. "The logical development of factory organization has been the complete coördination of all factors which are auxiliary to mechanical power and devices. The most important auxiliary factor is human labor. A worker is a perfected factory attachment as he surrenders himself to the time and the rhythm of the machine and its functioning; as he supplements without loss whatever human faculties the machine lacks, whatever imperfection hampers the machine in the satisfaction of its needs. If it lacks eyes, he sees for it; he walks for it, if it is without legs; and he pulls, drags, lifts, if it needs arms. All of these things are done by the factory worker at the pace set by the machine and under its direction and command. A worker's indulgence in his personal desires or impulses hinders the machine and lowers his attachment value. This division of the workers into eyes, arms, fingers, legs, the plucking out of some one of his faculties and discarding the rest of the man as valueless has seemed to be an organic requirement of machine evolution." (H. Marot, *Creative Impulse in Industry,* pp. 4–5.*) The discovery through scientific management that the principles of efficiency which were formerly thought applicable only to the mechanical phases of production might likewise be employed to regulate the energy supplied by the worker, has been the last link in the chain firmly riveting the operator to his machine. The whole motive force to activity is now seen to have passed from human beings into machinery. The complete prostra-

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tion of the instinct of workmanship under these circumstances is inevitable.

The demands of labor unions are symptomatic. Human beings resist being made into machines, and the constant demand for shorter hours indicates the desire of the workers to escape from work which is disintegrating to personality. The workmen have combined against the employer to gain the freedom which they see steadily being taken away from them. Since they think themselves the inevitable victims of a machine age, their only chance for individual development seems to lie outside of their work. It has been found in innumerable instances, however, that increase in wages and the shortening of hours in no way solves the problem. The difficulty is far more fundamental in character. In the process of industrial evolution the factor which in the past has made of industry a great liberating force for the release of human values, has been cut off from it. Until we can in some way restore this factor so that it is again made tributary to industry, we can never hope for a solution to this great social problem. The present industrial organization does not offer to the worker the motive for work. What is the motive to industry? How far are the motives upon which industry has advanced in the past still operative? These are the fundamental questions which must be answered.

The great advances in industry have been made through the application of scientific inventions to mechanical processes. In the modern system of production with its rigid application of the principle of division of labor, science and industry have become divorced. Specialists in laboratories work out the needed formulas. These pass through several departments and finally reach their application in the joint output of the workers. The present régime shuts off inquiry on the part of the workman into the processes upon which he is engaged. He has no opportunity to accumulate valuable experiences from his labor and becomes a mere automaton in the performance of the day's work. As a result his work has no meaning to him; he sees in it no relation to his own needs and purposes. No

satisfactory solution can be found to the industrial problem until the union of science and industry is again made operative in the personality of the artisan. We must restore to the workers a consciousness of the scientific implications of the processes upon which they are engaged. The laws of the physical sciences are statements of certain combinations of conditions. Scientific application consists in the creation by means of human invention of a set of conditions which do not occur simultaneously in nature. Efficient production will result only when the workers are made participators in the creation of new conditions that make possible new applications of science. It is only when the worker is allowed to become a conscious director of the natural forces with which he is dealing that the will to work is fostered; any other environment offers no incentive to increased effort. If through giving the opportunity to the workers for personal initiative in investigation and experimentation, the scientific values can be restored to industry, it will again resume its place as a fundamental motive force for the advancement of the human race. The question is how to bring about the necessary changes in the present complex state of the industrial arts. The problem for those engaged in the conduct of industry consists in creating conditions by means of which this ideal may become effective in operation; the problem for those concerned with education consists in forwarding a type of education which, among other things, will develop a fundamental concept of industry in its relation to the advancement of social life. *In other words, we must introduce education into industry, and industry into education.*

The advance of science and industry during the last century has been accompanied politically by an advance in democratic control. The spread of democratic ideals and institutions, the dominant feature of contemporary life, is not a characteristic isolated from its scientific and industrial tendencies but rather a recognition of their social significance. Democracy signifies a flexible form of social organization resting upon the will of the mass of the people and responsive to changes in their purposes. Political

democracy dependent as it is upon a free movement of experiences and ideas can be nothing more than a mere term unless the people composing it are accustomed to a type of life-developing power related to responsibility. Since the modern world is an industrial world, it must remain a huge mechanism leaving the major portion of life unemancipated, unless industry is animated by the social spirit implicit in the democratic ideal. Beneath the mutual distrust of employer and workers lies a great fundamental problem as yet unsolved. The wage system is a system of industrial serfdom. Production is not for use but for profit. The worker sells his labor for a fixed price; he has no rights in the product, he has no control over the conditions under which he works. It is evident that some form of reorganization is imperative for social welfare. As has been truly said in another connection, a nation cannot exist half slave and half free. We cannot expect the type of mind that has become inured to the benumbing effects of automatic labor for several hours each day, to express itself in its hours of release in any useful or satisfying form.

It is impossible to retrace the steps of evolution and return to an earlier, simpler, industrial régime in which the workman is his own master. We must find new values in the present industrial techniques. The only way that wholesome emotional reflexes can be restored to industry as it is now constituted is to take advantage of the opportunities resident in it for associated effort. The workers' sense of personal use must give way to a conception of social use. "It happens that in machine production and in the division of labor there are emotional and intellectual possibilities which were non-existent in the earlier and simpler methods of production. As power latent in inorganic matter has been freed and applied to common needs, an environment has been evolved, filled with situations incomparably more dramatic than the provincial affairs of detached people and communities. Although this technological subject matter, rich in opportunities for associated adventure and infinite discovery, is not a part of common experience, it exists, and if called out from its isolation for purposes of common experimentation,

it is fit matter for making science a vital experience in the productive life of the worker. . . . The present is better than any time earlier in the history of technology for the development of a concept of industry as a socially creative enterprise. . . . In the labyrinth of mechanical processes and economic calculation it is not to-day possible for a worker to think or speak of a product as his. . . . A worker's claim to the product of his labor is merged in an infinity of claims which makes the product more nearly the property of society than that of any one individual. And this merging of claims which has resulted in the submerging of all wage workers, has set up the new educational task of discovering the possibilities for creative experience in associated enterprise.

"While an article manufactured under business conditions is the product of enforced association, we have in this condition the mechanics of a real association. As it now stands, the association is one of individuals, with the impulse for association and for creative effort left out. The interests of some ninety workers associated together in the making of a shoe are not common but antagonistic, except as they are common in their antagonism to the owner of the shoe on which they work. They hang together because they must; their parting is the best part of a working day.

"And yet the practice of dividing up the fabrication of an article among the members of a group instead of confining the making of it to one or two people, opens up the possibility of extensive social intercourse, and has the power, we may discover, to sublimate the inordinate desire for the intensive satisfaction of personal life. Although the division of labor has given us a society which is abortive in its functioning like a machine with half assembled parts, it offers us the mechanics for interdependence and the opportunity to work out a coördinated industrial life." (H. Marot, *Creative Impulse in Industry*, pp. 25–28.*)

The needed vivifying influence, capable of converting this sterile division of labor into a type tributary to the advancement of social life is the democratic control of indus-

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try. The coöperative system in which the workmen are responsible for the success or failure of their enterprise aims to restore the motive of personal interest to large scale production. Intrinsic interest in work which must often be lacking in machine production is supplemented by the stimulus to good workmanship coming through the sense of responsibility and coöperation. Machinery becomes to the worker a means to an end and is thereby invested with social value.

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PART II

THE EDUCATIVE PROCESS

The Function of Education

We have seen that, as a result of the superior type of his responses to the environmental situation, man has evolved a highly complex social world of customs, traditions, institutions and the like, which represent his ideas and beliefs. This accumulated experience of countless generations must be continuously passed on to the new members of society who are taking the places of those who die, if social progress is to continue unbroken. We have seen that whereas among the lower animals almost all the characteristics necessary for existence are directly inherited from the parents, man inherits only a small proportion of the powers he requires to carry on his life. "Every child is born destitute of things possessed in manhood which distinguish him from the lower animals. Of all industries he is artless; of all institutions he is lawless; of all languages he is speechless; of all philosophies he is opinionless; of all reasoning he is thoughtless; but arts, institutions, language, opinions and mentations he acquires as the years go by from childhood to manhood. In all these respects the new-born babe is hardly the peer of the new-born beast; but as the years pass, ever and ever he exhibits his superiority in all these great classes of activities, until the distance by which he is separated from the brute is so great that his realm of existence is in another kingdom of nature." (J. W. Powell, *From Barbarian to Civilization,* American Anthropologist, 1888, p. 97.) In the course of a few years, the child born ignorant, helpless, dependent, must be adjusted to a rich, complex, and constantly changing environment. Each generation must take over into their lives all the fundamental

values of civilization which it has required thousands of years to achieve. "Years, centuries, generations of invention and planning, may have gone to the development of the performances and occupations surrounding the child. Yet for him their activities are direct stimuli; they are part of his natural environment. . . . He cannot, of course, appropriate their meaning directly through his senses; but they furnish stimuli to which he responds, so that his attention is focussed upon a higher order of materials and of problems. Were it not for this process by which the achievements of one generation form the stimuli that direct the activities of the next, the story of civilization would be writ in water, and each generation would have laboriously to make for itself, if it could, its way out of savagery." (John Dewey, *How We Think*, pp. 159-160.) This defines the high task of education; it is evident that the ultimate reliance of all social reconstruction must be upon education.

Society has always had a realization of this fact from primitive times to the present. In earlier, simpler societies the young were inducted into the collective knowledge of the community principally by direct participation in the life about them; but as time went on and knowledge increased greatly in amount, a special institution was dedicated to the work. The aim of education in each generation has been to enable the children to reach the highest point previously reached by the race. It seemed evident, therefore, that the school must effect certain short cuts. The realization of this necessity together with a faulty knowledge of psychology has been responsible for the highly abstract form of school instruction. "There is a strong temptation to assume that presenting subject matter in its perfected form provides a royal road to learning. What more natural than to suppose that the immature can be saved time and energy, and be protected from needless error by commencing where competent inquirers have left off?" (John Dewey, *Democracy and Education*, p. 257.) Therefore the curriculum is worked out in detail, so much of each subject for each year, and the whole work of the school made to revolve about this fixed scheme. "Subdivide

each topic into studies; each study into lessons; each lesson into specific facts and formulae. Let the child proceed step by step to master each one of the separate parts, and at last he will have covered the entire ground. The road which looked so long when viewed in its entirety, is easily traveled, considered as a series of particular steps. Thus emphasis is put upon the logical sub-divisions and consecutions of the subject-matter. Problems of instruction are problems of procuring texts giving logical parts and sequences, and of presenting those portions in class in a similar, definite, and graded way. Subject-matter furnishes the end, and it determines method." (John Dewey, *The Child and the Curriculum,* pp. 12-13.)

This mode of procedure, however effective it may be when the subject matter is regarded externally by itself, neglects the essential factor of the human being's peculiar method of assimilating subject matter. It is impossible for the school to make the short cut of verbally inducting the child into generalizations. We have seen that knowledge was the outcome of the experience of the race, and that it was gradually ordered and classified as wider and wider relationships were perceived in the environment. *Education, to function in the great evolutionary scheme of things, must be consistent with the underlying laws of development.* The parallel between the development of the race and that of the child, recognition of which has expressed itself in the past in certain doctrinaire beliefs, notably the Culture Epoch Theory, lies in the process through which the human mind must go in order to reach its conclusions. The process is the same to-day as it was centuries ago. The only difference is in the infinitely more complex environment with which the modern mind has to deal. Fundamentally, the possibility and opportunity for education lie in the capacity and necessity for the human organism to learn. A human being is an adaptive organism. It has certain vital needs to be met, and like all other organisms, it is subject to environmental influences. It has, however, infinitely greater innate capacities than any other animal. These, as we have seen, are not effective at birth; their

development depends upon experience. Born with the least coördinated and finished structure, the effective adjustments of the human infant have for the most part to be made after birth. We have seen that the scheme of adaptation in the animal world does not permit the development of effective modes of learning. The human infant on the other hand almost from birth begins responding to his environment in an effort to achieve his purposes. As he responds he experiences certain satisfactions and dissatisfactions and tends to modify his conduct accordingly. As a consequence of this interaction with the environment, more and more effective adaptations are made, and learning takes place at a rapid rate. We see, therefore, that education is implicit in the effective functioning of the life processes. "As to structure, human nature is undoubtedly the most plastic part of the living world, the most adaptable, the most educable. Of all animals, it is man in whom heredity counts for least, and conscious building forces for most. Consider that his infancy is longest, his instincts least fixed, his brain most unfinished at birth, his powers of habit-making and habit-changing most marked, his susceptibility to social impressions keenest,—and it becomes clear that in every way nature, as a prescriptive power, has provided in him for her own displacement. . . . Other creatures nature could largely finish; the human creature must finish himself." (W. E. Hocking, *Human Nature and Its Remaking*, pp. 9-10.)

In the eager explorative nature of young children and in their plasticity, then, we have a condition readily lending itself to educative influences. Nature in requiring education has provided generously for facilitating it. It is only our blundering that has kept us from taking advantage of the great native resources at hand and utilizing them for educational purposes. Education begins at birth but left to chance it would be haphazard and ineffective. Consciously directed education should seek to guide and direct the natural process. The school is simply a part of the great institutional life which man has evolved the more adequately to advance himself. The problem of the school is

how to adapt immature beings to a highly developed social environment. Child nature is the raw material of education, the stuff that has to be moulded into forms more efficient for social advancement. It seems evident, therefore, that a scientifically directed education must begin with a psychological insight into childish needs and capacities, and must be conditioned at each stage of its development by just such insight. ". . . from the standpoint of the immature beings who . . . are being transformed into social members to sustain the community type of life, . . . education may be defined as a process of the continuous reconstruction of experience with the purpose of widening and deepening its social content, while, at the same time, the individual gains control of the methods involved, . . . Experience is crude, narrow, and largely self-centered. Yet it has within itself capacities of assimilating and re-creating what is most perfected, developed and generalized in culture, for otherwise the wonderful products of art, industry, and science would never have come into being as in the past. Hence the educative process is a constant process of making-over the existing experience, so that the social values lying blindly and crudely within it shall be clarified and enlarged. Yet the leverage of this transformation must be sought and found within experience itself; experience cannot be made over from without, but only in the process of its own growth. There are dynamic, transitive tendencies in the very nature of experience which tend to keep it growing and expanding. The educational process provides stimuli that appeal to these intrinsic tendencies." (John Dewey, *Education,* Cyclopedia of Education, p. 400.*)

We have now defined the problem of formal education and indicated suggestions for its solution. The task of education is continuously to induce such intellectual and emotional responses in developing organisms as will direct them into desirable social channels. The solution of the problem involves two factors: Social considerations determine the end toward which adaptations are to be directed, and sup-

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ply us with the subject content of education; psychological processes dictate the method by which our aim may be accomplished.

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The Place of Activity in Education

The question of method leads naturally to a consideration of the place of activity in education. The curriculum of most elementary schools already includes a variety of active pursuits such as constructive work, modelling, plays and games and the like. Their introduction in many cases has been sanctioned for no better reason than as a concession to the persistent activity of children. When for the greater part of each day children are forced into unnatural positions of passive receptivity, activity of any sort is welcomed by teacher and children alike as a relief from the resulting tedium and strain. To accept such a view is, however, to

assess activity in a purely negative way, and to fail entirely to appreciate its profound educational significance. It is thereby reduced to a trivial rôle, as a mere matter of expediency, or as a diversion from the serious undertakings of the school. Such a view also fails to offer any standards of educational values in active pursuits: all are thereby reduced to a dead level.

Active pursuits as they are now often conducted in schools are open to another serious criticism. The teacher, in her zeal for achieving results, centers her attention upon the finished product—the factor of least importance in the situation—and fails to center it upon the process, which is the really essential part of the whole matter. The products of childish activity can never be regarded as of any value except as an index of the intellectual factors implicit in them. They should be allowed to be as crude as the child's poorly coördinated muscles necessitate. The child should be allowed to make mistakes, if need be, in order that by his natural method of trial and error he may gain judgment for use in later attempts. A scheme of activities to be really educative should be rich in possibilities for making mistakes, since it is precisely at this point that education takes place. The teacher's business is not to prevent mistakes—which she is likely to do when her attention is centered on the product—but to see that the child receives the full educational benefit of his mistakes after he has made them. An automatic machine makes no mistakes, but it also evolves no ways of meeting new situations; it cannot learn. Automatic control among animals marks their limitations. Habituation in human beings marks the end of progress in any series of thought processes. School activities, developed by methods of prescription and dictation, provide only *training,* by which pupils are enabled to meet more successfully the same situation when it recurs; they fail to provide *education,* by which pupils are able to meet with ingenious solution new situations as they arise. One of the essentials of growth is that children should be left free to work out for themselves the methods and processes of successful activity.

In following the course of evolutionary changes we saw the gradual emergence of more and more purposeful activity as a vital factor in the struggle for existence; we saw that it was through purposeful activity that man has gradually brought the materials and forces of nature under his control and thus achieved his supremacy in the world. In the development of civilization we saw that it was through the exigencies of daily life, through the emergencies which man was constantly obliged to meet in providing food, clothing, shelter, and his other necessities, that he was obliged to plan, to forecast the results of various lines of action, to formulate purposes, and to devise the proper means for their successful and economical realization. All of this means thinking; it means thinking in the most valuable sense of the term. It has been through the constant exercise of this kind of thinking that man has improved his technique of thinking, so that he is able to deal with situations of the greatest complexity. In following the evolution of knowledge we saw that dogma and superstition always dwelt on the fringes, and represented beliefs that had not yet been subjected to the test of experience. Progress in knowledge has been the gradual extension of tested knowledge and the consequent diminution of unfounded beliefs. Purposeful activity may therefore be looked upon as the primary human motive force. It is such activity that has made civilization what it is; it is only by such activity that progress can continue through each successive generation. *Activity, therefore, instead of being a by-product of the educative process, is the process itself, since it is through purposeful activity that learning takes place and that tested knowledge accrues.*

It is because thinking is integrally related to purposeful activity that activities offer a rich opportunity for the emergence of thought-provoking problems. When knowledge is pursued directly, as is the case in the old school régime, there is comparatively little opportunity for developing this most valuable type of thinking. Children are allowed to think, but only upon isolated issues, on little unrelated units chosen and arranged in advance for them.

They are rarely permitted to think their way out of situations. Little opportunity is given for adapting ideas in relation to a problem to be solved. For the most part the attempt is made to give training in thought by ready-made methods. The power of thought cannot be developed by the direct method. *What is passed on under such circumstances is the solution, not the process by which it was arrived at.* Thinking in childhood is not different in kind from the reasoning of adults. The difference lies in the narrow range of childish experience and in the less highly specialized thinking processes. It is evident that the child cannot pursue the elaborate technique of adult thinking. He can, however, organize his crude processes to meet situations that are concrete and simple. It is the task of education to help children improve their methods of thinking by making them conscious of problems, and skilled in methods of solving them. "The most significant question which can be asked, accordingly, about any situation or experience proposed to induce learning is what quality of problem it involves. At first thought, it might seem as if usual school methods measured well up to the standard here set. The giving of problems, the putting of questions, the assigning of tasks, the magnifying of difficulties, is a large part of school work. But it is indispensable to discriminate between genuine and simulated or mock problems. The following questions may aid in making such discrimination. (*a*) Is there anything *but* a problem? Does the question naturally suggest itself within some situation of personal experience? Or is it an aloof thing, a problem only for the purposes of conveying instruction in some school topic? Is it the sort of trying that would arouse observation and engage experimentation outside of school? (*b*) Is it the pupil's own problem, or is it the teacher's or text-book's problem, made a problem for the pupil only because he cannot get the required mark or be promoted or win the teacher's approval, unless he deals with it? . . . As a consequence of the absence of the materials and occupations which generate real problems, the pupil's problems are not his; or, rather they are his *only* as a pupil, not as a human being. . . . A

pupil has a problem, but it is the problem of meeting the peculiar requirements set by the teacher. His problem becomes that of finding out what the teacher wants, what will satisfy the teacher in recitation and examination and outward deportment. Relationship to subject matter is no longer direct. The occasions and material of thought are not found in the arithmetic or the history or geography itself, but in skillfully adapting that material to the teacher's requirements." (John Dewey, *Democracy and Education,* pp. 182-4.*)

The chief danger which is the outcome of teaching by methods of prescription and dictation lies in the type of mind and character it produces. It inevitably puts a premium upon docility and routine thinking, and discourages sturdy and independent thought. The results of this sort of training may be of a kind inimical to social progress. Minds habituated to passive acceptance of knowledge from those in positions of authority without subjecting it to the test of personal reflection or inquiry into its validity, may easily be persuaded into all sorts of false beliefs. Education proceeding by such methods is open to the danger of becoming a mere process of indoctrination, propagating error, and perpetuating prejudice. Instead it should be a great dynamic force devoted to dispelling illusions, and eradicating error, constantly extending the boundaries of tested knowledge, and thus consciously affecting social progress. Children who are skilled in methods of experimental inquiry and proof, who are accustomed to examine into the nature of evidence, will have the power to discriminate between sound knowledge and unfounded opinion and dogmatic belief. The greatest safeguard against the irrational tendencies always current in the social environment is the development of that attitude of mind known as scientific. Without such an equipment we are defenceless against the ideas that come down to us through tradition. "While it is not the business of education to prove every statement made, any more than to teach every possible item of information, it is its business to cultivate deep-seated and effect-

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ive habits of discriminating tested beliefs from mere assertions, guesses, and opinions; to develop a lively, sincere, and open-minded preference for conclusions that are properly grounded, and to ingrain into the individual's working habits methods of inquiry and reasoning appropriate to the various problems that present themselves. No matter how much an individual knows as a matter of hearsay and information, if he has not attitudes and habits of this sort, he is not intellectually educated. He lacks the rudiments of mental discipline. And since these habits are not a gift of nature—no matter how strong the aptitude for acquiring them: since, moreover, the casual circumstances of the natural and social environment are not enough to compel their acquisition, the main office of education is to supply conditions that make for their cultivation. The formation of these habits is the Training of Mind." (John Dewey, *How We Think,* pp. 27-28.*)

The primary educational importance of activities lies in the fact that offering as they do, innumerable opportunities for the solution of real problems by the methods of scientific inquiry and proof, they offer the most natural and direct means of training in that type of mind known as scientific. "One of the only two articles that remain in my creed of life is that the future of our civilization depends upon the widening spread and deepening hold of the scientific habit of mind: and that the problem of problems in our education is therefore to discover how to mature and make effective this scientific habit. Mankind so far has been ruled by things and by words, not by thought, for till the last few moments of history, humanity has not been in possession of the conditions of secure and effective thinking. . . .

"Scientific method is not just a method which it has been found profitable to pursue in this or that abstruse subject for purely technical reasons. It represents the only method of thinking that has proved fruitful in any subject—that is what we mean when we call it scientific. It is not a peculiar development of thinking for highly specialized ends; it

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is thinking so far as thought has become conscious of its proper ends and of the equipment indispensable for success in their pursuit. . . . If ever we are to be governed by intelligence, not by things and by words, science must have something to say about *what* we do, and not merely about *how* we may do it most easily and economically. And if this consummation is achieved, the transformation must occur through education, by bringing home to men's habitual inclination and attitude the significance of genuine knowledge and the full import of the conditions requisite for its attainment. Actively to participate in the making of knowledge is the highest prerogative of man and the only warrant of his freedom." (John Dewey, *Science as Subject Matter and as Method,* Science, Jan. 28, 1910, p. 127.*)

The organization of the school as a community, involving as it does frequent necessity for the adjustment of social relations similar to those occurring in the real world, provides the best environment possible for the development of the scientific attitude in relation to social events and relations. *When social situations arise in a purely educative medium, it is possible as under no other circumstances to analyze them, to point out their weakness or strength—in short, to bring out their full educative value and gradually to build up a conception of social relations as they should be, and a consciously directed technique of coöperation.* Children accustomed to respond in desirable ways to social situations during the formative period will have acquired modes of reaction of the greatest social value in later life. Such training will be of the greatest importance in bringing about that more conscious organization of society, so crucially needed, by which we order social changes, instead of undergoing change blindly. "A nation habituated to *think* in terms of problems and of the struggle to remedy them before it is actually in the grip of the forces which create the problems, would have an equipment for public life, such as has not characterized any people. . . . Is there any meaning in the phrase 'democratic control' of social affairs

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save as men have been educated into an intellectual familiarity with the weak places, the dark places, the unsettled difficulties of our society before they are overwhelmed by them practically?'' (John Dewey, *The Schools and Social Preparedness*, New Republic, May, 1916, p. 16.)

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THE ORGANIZATION OF ACTIVITIES

When the fundamental psychological significance of activity is fully realized, the whole task of the school assumes a new aspect. *Instead of being a problem in the*

organization of subjects of study, the basic problem of the school becomes the formulation of a program of activities. It resolves itself into discovering the characteristics of the impulse to activity at different periods of growth, and in arranging activities in accordance with the gradually expanding capacities of the growing child. From the educational point of view, however, activity is not an end in itself. It is only the most potent because the most natural means. Childish activities are educationally important only in that they are significant indications of possible future experiences; their value is in the leverage they afford, not in the accomplishment they represent. The problem of the school becomes, therefore, the selection out of the countless possibilities for activity open to children, of such activities as will gradually adjust them to the social responsibilities of adult life, which will provide experiences developing social sensitiveness and control, and which will at the same time give skill in desirable techniques.

Activity as Play

Play has for a long time been considered a legitimate educational factor until the mystic age of six is reached. The conception of play here advocated sharply differentiates it, however, from the conventional kindergarten or Montessori philosophy, and demands a much broader and more extensive utilization of the play impulse in school. It demands also an entirely different treatment by the teacher and an entirely different play equipment. Groos's conclusion that the play impulse was developed through natural selection as a means of adapting the organism to its environment, was a significant contribution to the theory of childhood of profound importance to education. The admission of play into the school according to this point of view is a recognition of the general educational principle: *that the natural processes of growth form the basis of the educative process; that the nascent instincts furnish the raw material of education.* If we subscribe to this point of view in regard to play, it dictates the ends to be sought, and the

procedure and the materials to be employed. Play is natural education because it is identical with the life process. The function of education is not to teach a child to play, but to provide opportunity for play. Educative play has its justification in the fact that through it the play development of the child is not left to chance influences. The school provides an environment carefully thought out and consciously arranged to stimulate the natural growth of the organism. We must not forget that the play world is the real world to the child, and that it is by means of it that he interprets the real world, working out for himself the relationships in it and thus experiencing it. This philosophy of play determines the type to be undertaken. It must be creative, not dictated; always governed by the child's inner purposes. The great thing, educationally speaking, is to make the child conscious of the play possibilities in his own environment, to suggest relationships implicit in familiar experiences, to keep the play impulse going from stage to stage of related play, thus continually expanding the boundaries of experience and deepening its meaning. If education means the conscious direction of the native impulses of children into channels of greater social usefulness, it must lay hold of this great natural asset of childhood and utilize it to its fullest extent, making it the medium through which the child gains social experience.

One's conception of play naturally influences the choice of play materials. The introduction of toys and playthings into school is an innovation looked upon with doubt; but if we grant the validity of the philosophy of play outlined, playthings take on a new meaning and follow as a matter of course. They are not a means of amusement, but the tools of childhood, and as such are worthy of a serious educational consideration. You cannot expect a child, generous as is his attitude toward play materials, adaptable as he is in converting almost anything to his play uses, to express himself adequately without proper means of expression; even he cannot make bricks without straw. We should provide him with toys and blocks, dolls, clay, crayons, paper,

and other play materials by which he may reproduce his home, his father's shop, the neighborhood with its streets full of traffic, the docks, the factories, and all the wealth of detail that makes up the modern world. It is by means of his active relations with these play materials, that the child is thinking through the home and community processes which he sees going on about him.

This point of view governs the choice of playthings, enabling us to discriminate between those which are educative and those which are not. Since toys are the means by which the child reproduces his environment they should be thought of not as isolated units, but in groups, related to the environment to be duplicated, and to each other. Otherwise they remain separate objects, inert, like the half-assembled parts of a great machine, not the active agents for interpreting related sequences. Since the play impulse is active, not passive, the character of the toys should be such that activity does not reside in the toy but remains with the child. "The marvelous increase in the number and variety of children's toys is a subject worthy of more serious attention than it has yet received. Even a superficial observation of these toys indicates that many of them are of such a character as to leave the child comparatively passive. The activity is handed over to a mechanism. The child gets his emotional excitement without regard to its legitimate expenditure. The balance between the sensory and motor nerves is destroyed, the organic circuit is broken, the tendency to rely on an external stimulus is fostered. The mere fact that the stimulus calls for so little motor response is sufficient to explain its temporary effect and the constant demand for some new means of stimulation. Could parents and teachers take even a few minutes a day or a few hours a week to help children to see the possibilities in a pile of sand, an unoccupied piece of ground, the tough grasses and woody fibers growing in the waste places, a neighboring tree, dry-goods boxes, paper and paste, in short in any of the legitimate materials in the environment of the child, there would be a saving of time for adults and a more normal and happy growth in the child. Such conditions

would afford a normal outlet for the constructive instincts, which need nutrition at this period. . . ." (K. E. Dopp, *The Place of Industries in Elementary Education,* pp. 107-108.*) As Miss Dopp points out, we must use discrimination not only in the type of toys selected, but in the number. The young child should not be overwhelmed by the complexity of the play environment provided. It must bear some relation to his present needs and it must be suggestive enough to link the child's narrow personal concerns with those of the great world. There should be just enough play material to act as a stimulus in initiating play. When once the play is under way more playthings can be supplied to keep it going, or, even better, the children may be encouraged to add to their nucleus of playthings by making their own. Such activity is valuable in exercising the children's inventive powers, in making use of materials at hand to satisfy their expanding needs.

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The aim of schools for young children then should be to provide a center rich in possibilities for play, in which all the desirable tendencies of child life may find legitimate satisfaction. The fundamental question to be answered is: what constitutes an all round opportunity for play? Following are some of the more important types of activity in which children naturally engage, which should be provided for in the school plan.

Dramatic Activities.—Dramatic activities should occupy a most important place in our conception of educative play, because it is by means of them that children interpret conduct and social action. The school environment should therefore offer ample opportunity for a broad range of dramatizations of social situations. The early plays of children are usually domestic in character, since dramatization requires related information, and the nucleus of the child's early stock of related information is in connection with home life. These home plays are especially suited to young children for several reasons. Representations of home life with its setting and the occupations carried on in the home are simple enough to allow children to see situations as wholes, and as they do not make great demand upon technique, they allow even young children to realize their purposes. They therefore give desirable reflexes in allowing children to feel at each stage of the process the emotional glow which accompanies the mastery of a new power. They provide sufficient variety to give continual diversity to action, and thus permit that ready shift of attention characteristic of the play of young children, yet they have an underlying unity which gives a sense of organization, and affords opportunity for disclosing relationships as emphasis passes from one phase to another. They make possible participation in a great variety of processes, and introduce children to the purposeful use of a great variety of materials. In the course of these dramatic representations more and more related information can be attached, and experience thus deepened and broadened. The home plays develop naturally, with increasing ability and knowledge, into plays reproducing all kinds of industrial and social situations. By extending the child's experience we give him more material for his dramatic purposes. Dramatic plays are therefore closely related to investigation and experimentation. Altogether the admission of this sort of plays into the school plan seems to be justified by the fact that it provides for the union of so many valuable educative factors.

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Chap. V. Froebel's Educational Principles.

Investigation and Experimentation.—The two most important ways in which man has learned the secrets of the universe are by means of discovery and experiment. The child learns about his world by the same methods. It is important, therefore, to open up these two great avenues of knowledge in the play-life of children. Before entering school, children have learned a great deal by this method. The world of man and nature is new and presents vast opportunities for investigation. For young children life consists in a series of delightful experiments, the world is an unending field for adventure. The great task of the school is to preserve and perfect the eager explorative nature of childhood, by providing wider and more consciously arranged opportunities than the child could get outside of school. Since dramatic plays are dependent for their development upon an increase of related information and a free and ready use of materials they give point and continuity to related activities such as excursions and experimentation. The need for greater information to complete a play scheme necessitates an excursion into the neighborhood to see the real thing in operation, or the need for some plaything makes necessary its construction out of materials at hand. Whenever the completion of a situation requires the child to explore his environment for illustrative material or necessitates the conversion of materials into forms more adequately satisfying his purposes, the impulses to investigate and experiment are functioning on a high educative level.

In the school plan, therefore, excursions and trips will play a far more vital part than they now do in school life. At present they are too often regarded as interruptions of the "regular work" and time begrudgingly provided for them. Here they are seen to be fundamental to the exten-

sion of experience and to introducing the child, through personal contact, into the social and physical world in which he is ultimately to play his part. The purpose of these excursions should be to reveal to the children the motivating forces, and the processes of social and natural phenomena. We cannot know life by second-hand methods, by reading or talking about it. The facts of life are all around us; to understand them the child must see them in their natural setting. Through the organization of definite trips of exploration the school can greatly multiply children's points of contact with the world. Trips and excursions are the threads that interlace between the school and life outside, connecting the two as the children mature by an ever increasing network. By this means the neighborhood gradually becomes the child's social laboratory. The city child comes to learn at first-hand how his small concerns are linked up with the great humming life of the city around him; the country child may make some important economic deductions about the sources of the raw materials supplying the great world with the wherewithal to do its work and keep itself going. Excursions for each sort of child should include not only those into the nearby neighborhood, but longer trips—for the country child into the nearest town, and vice versa for the city child. It might be possible to follow a commodity from its source to its destination and thus give a realization of the mutual interdependence of city and country. These trips, then, will be undertaken with definite purpose, and will include a great variety of places—excursions to museums, to industrial and commercial plants, to docks and harbors, to historic places, to farms, and so on. These countless related new experiences will form the basis of the children's understanding and appreciation of the world and all its marvelous industries and institutions. On the way will be assimilated a vast store of information about the essentials of social life, which will afterward no doubt find its expression in the dramatic and constructive activities of the school.

We must utilize to the fullest extent not only children's natural curiosity about the world in which they live, but

also their natural love of tinkering and doing things. Far from being mere idle fooling, as it is so often thought to be, this playful manipulation is fraught with the greatest educational possibilities. It was by means of playing with a kite that Franklin made a valuable contribution to the application of electricity; it was through watching a falling apple that Newton was able to make important deductions regarding the force of gravity. Young children should be given every opportunity to try out their ideas, to handle materials, to see what can be done with tools and machines, to indulge in the playful manipulation of toys and appliances involving mechanical principles. With increase of ability this manipulating instinct will gradually expand into more complicated activities with wood, with plastic materials, with textiles and the like. Children should be allowed to keep pets and thus observe them in their natural habitat. They should be given opportunity to grow plants in gardens and thus by experimentation to learn the conditions of growth. In the natural desire of young children to handle things and see what will happen we have the crude basis for the development of experimental science. From interest in seeing what happens under certain circumstances to arranging conditions so that certain results will follow is but a step. If this interest develops so that the conditions are intentionally varied, and a purposeful effort is thus made to find out what conditions are present when the effect occurs, and absent when it does not occur, a principle can be enunciated, and we have the constituents of a scientific experiment. By developing activities in this way, we use every-day experiences to introduce children into those methods of discovery and verification which are the chief resource of scientific reasoning.

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Chap. II. The School and the Life of the Child.

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Art Activities.—The art impulse lies very close to the play impulse; it is activity indulged in for its own sake, not under the pressure of supplying material needs. Indeed it finds expression usually only in the leisure that results when material needs have been satisfied. The effort of the self is always to enlarge itself through expression. Whenever man transcends the bounds of ordinary experience he instinctively attempts to perpetuate his images in satisfying form through creative activity. The product, however crude it may be, inevitably takes on certain art qualities such as balance, rhythm, harmony and the like. It is because the art impulse and the play impulse are kin that it is possible in school to develop the natural activities of children into forms having significant art values. "Play as work, as freely productive activity, industry as leisure, that is, as occupation which fills the imagination and the emotions as well as the hands, is the essence of art. Art is not an outer product nor an outer behavior. It is an attitude of spirit, a state of mind—one which demands for its satisfaction and fulfilling a shaping of matter to new and more significant form. To feel the meaning of what one is doing and to rejoice in that meaning, to unite in one concurrent fact the unfolding of the inner life and the ordered development of material conditions—that is art. The external signs—rhythm, symmetry, arrangement of values, what you please—these things *are* signs of art in the degree in which they exhibit the union of inner joyful thought and outward control of nature's forces. Otherwise they are dead and mechanical." (John Dewey, *Culture and Industry in Education,* Educational Bi-monthly, Oct. 1, 1906, p. 8.*)

*By permission Chicago Normal College.

This description of the art impulse should serve to give a more fundamental conception of the purpose of art than is evident in the work of many schools, and to give a clue to the methods by which the vital connection between art and life may be made evident to children. We must set the school conditions so that the growth of artistic production is possible. If children are given experiences that kindle their imagination and stir their emotions, they will spontaneously express themselves in forms objectifying their images. These productions, crude though they be, will be found to have art value. The free creative tendencies of children released in channels of satisfying achievement, should therefore form the basis of instruction in art. Development in art may be looked upon as play, under the principle of order becoming conscious of itself.

It may be thought that since most children are to become appreciators rather than creators of art, that appreciation might be developed through more direct methods. But it is particularly true of children, that it is only through personal experience that they can appreciate the recorded experiences of others; in other words, that appreciation follows experience. *It is only by taking part in creative productions, not for the sake of producing beauty, but as a means of expressing significant feelings, that a vigorous and wholesome appreciation of art can be built.* In developing the art spirit the appreciation of traditional works of art is important, but the greatest care should be exercised in their use, since they are specific responses to situations quite different from the situation in which the child finds himself. Wherever they can be used, however, as a means of enabling the child to assess his own production, or as a stimulus to further personal expression, their use is justified and valuable.

This point of view indicates also the use and value of instruction in technique in art. Technique should be introduced as needed as a stimulus to improving expression. As each step in technique means so much inhibition it is dangerous to set up these boundaries before ideas have an opportunity to originate and mature. Professor Dewey has

made such a significant analysis of the psychology of art production that it is incorporated here almost in full, and is intended to supply the point of view not only for drawing, with which it specifically deals, but with music, dancing, and all other art forms.

"It is obvious that the teaching of artistic expression will start along the lines of least resistance, and be effective as to both external output and as to the educator of the individual pupil just in the degree in which it bases itself upon the psychical impulse which furnishes the motive to expression. But something more is required than a right start. If the education is to be effective, this impulse must be directed, must be utilized to the full. . . . We have plenty of glorification of art, and of the importance of artistic training, but we have almost no definite scientific attempts to translate the artistic process over into terms of its psychical machinery—that is, of the mental processes which occasion and which effect such expression. In entering upon the attempt to make such a translation I shall select as basis of the discussion, for reasons that require no explanation, drawing as the type of artistic expression.

"We may begin our analysis with the familiar distinction of idea and technique. Every mode of expression, no matter how mechanical, no matter how fantastic, how impressionistic, has these two sides. The architect's drawing of the plan of a house, the engineer's working plan for the construction of a machine must have an idea to be expressed, or else any series of lines drawn with a ruler would serve as well. And the crudest attempt of a child to illustrate 'Hickory-Dickory-Dock' has also its technique*—its mode of realization. It is also clear that in this process of expression the primary function belongs to the idea, the secondary to the technique; they are related as content and form, as material to be conveyed and delivered and as mode of conveyance, as what and as how. But lest this statement should be misinterpreted, as it seems to me it often is misinterpreted, it must be added that to say that one is final and

*This is to be interpreted in the light of the distinction hereafter made between unconscious and conscious technique.

the other subservient, one is end, the other means, does not of necessity mean that attention is to be concentrated upon the one and the other is to be neglected. What we derive from this statement of the subservience of technique to idea is not a criterion for the amount of attention to be given to each, but a criterion for the reason of directing attention to one or the other; we get a motive for attending. If one is thoroughly interested in the idea as something to be expressed, he must, on that account, be interested in the mode of expression. An insufficient interest in the form or process always marks something crude, hazy, or unreal in the content. We must be interested in the expression just in proportion to the intensity, the controlling character of our interest in the idea. But, on the other hand, this interest in the idea, in the story to be told, the thought to be realized, is the only basis for an artistic interest in the technique. A mode of expression separated from something to express is empty and artificial; it is barren and benumbing.

"I make this point at the outset because it seems to me to define both the practical and the theoretical problem of drawing instruction. It is comparatively simple to abstract the technique, to make command of certain tools, physical and mental, the end and aim; it is comparatively easy to start from the image, the story, and allow that to find its own unaided outlet, and under claim of the superiority of idea to technique, allow not simply a crude and unformed result to pass—that is a matter of no importance in itself—but to encourage crude and slovenly habits of expression to grow up—which is an exceedingly important matter. The *via media* which is such a difficult path to find—the straight and narrow path which makes for artistic righteousness—goes in neither of these directions, but attempts on the one hand to make the interest in the idea, the vital image to extend itself to the mode of conveyance, to make the entire interest in technique a functional not an isolated one, while on the other it recognizes the necessity of having the mode of expression react back into the idea, to make it less cloudy, more definite, less haphazard, more accurate, less the product of the momentary, undeveloped interest and

thought, more the outcome of mature reflection and comprehensive interest.

"So much for our practical problem in general. Now for its psychological equivalence. What corresponds to idea, what corresponds to technique in the natural psychical process; how are these related to each other; how do they interact in a mutally helpful way? We cannot accept one apparently simple way of answering this question. We cannot say that the idea is imaginative, is spiritual; while what corresponds to the technique is physical, mechanical. The simplicity of this answer is at the cost of reality. The mental occurrence which represents the form or mode of expression is just as much an image as is the idea itself. It is not the problem of the relation of a spiritual image to a physical organ of expression, but of one sort of imagery to another. And while this is perhaps an unusual putting of the matter, we must recognize that after all it is because the whole process is one of imagery that the problem is a soluble one in an educative sense. If one side, the idea, were alone a matter of the imagination, and the technique were simply a matter of delicate and accurate physical control of the eye and muscle, we could never get a genuine harmonizing of the two factors in the problem; we should be compelled simply to alternate from one side to the other or to make the best compromise we could.

"In saying that the side of technique is itself a matter of imagery, I refer to what the psychologists term motor imagery, and to the well-known fact that imagery of all kinds has a tendency to overflow in the motor channels, and that thus there is a tendency to reproduce through action and experience, or to put forth in expression whatever has been gained in impression and assimilated into an idea. I refer, moreover, to the fact that such motor expression is not something done with an idea already made in the mind, but is necessary to the appreciation of the idea itself. If there is one principle more than another upon which all educational practice, not simply education in art, must base itself it is precisely this: the realization of an idea in action through the medium of movement is necessary to the vivid-

ness, the definiteness, the fullness of that idea itself. We cannot speak of an idea *and* its expression; the expression is more than a mode of conveying an already formed idea; it is part and parcel of its formation. The so-called mechanical phase is necessary to the integrity of the spiritual. Education, like philosophy, has suffered from the idea that thought is complete in itself, and that action, the expression of thought, is a physical thing. We are learning to know that thought is thought only in and through action.

"Here we have the natural psychical origin of drawing, as well as of all other forms of expression. There is a natural tendency for every image to pass into movement; an inert image, an image which does not tend to manifest itself through the medium of action is a non-existence. In later life, we have learned to suppress so many suggestions to action, and have learned to delay the expression of so many others, that this fundamental law has become somewhat obscured, but a study of child-life and growth reveals it in its purity and intensity, and reveals also that the suppression of manifestation of an image or delay in its passage into action is an acquired habit, a later acquisition. In the early period, the tendency of every image to secure realization for itself in the medium of action is witnessed in play and in the incessantly urgent desire of the child for conversation; his impulse to tell everything, to communicate. . . . In all these earlier reproductive activities it is clear that there are not two sides to the child, an image and its expression; the image *is* only its expression, the expression is only the image moving, vitalizing itself. The technique is unconscious; it has no separate value in consciousness. There is no interest in the *how,* distinct from the *what.* . . .

". . . the unconsciousness of technique or the lack of any consciousness of the mode of doing, apart from what is being done, and the complete absorption of the agent in his action, we must take with us to the consideration of the beginnings of instruction in artistic expression of a more formal kind than is play. Drawing as a development of play marks, however, a growing inhibition or control. The

whole image at first moves in the *whole* organ by the principle of radiation or expansion. Drawing marks the limitation to certain channels; moreover it is directed more immediately by the eye image, not the experience as a whole; it marks therefore, *relatively* an *analysis*. . . . Drawings then at first are means of reinforcing and continuing some interesting life experience of the child, through giving it back to the eye by means of the hand. The start *must* be imaginative, not simply ought to be. Even in drawing objects the child will draw from his image, not from the object itself. There is no road from the object to the child's motor nerves and hand, but only from his mental picture of the object. The use of the object must be therefore simple to help the construction of the image; anything else merely creates dependence upon the external. It not only leads to servility, but by disintegrating imagery makes the product mechanical. Moreover, the child is interested in objects simply from the standpoint of the part they play in his life, their use, the value they have for him, not as objects, but as factors in some life scene. Thus objects at first are seen, not so much in terms of their visual appearance as in terms of touch, because touch represents more adequately the immediate experience values of the object, what can be done directly with it, while sight represents more indirect, and as it were symbolic values. . . . It is on this account that the picture, judged as itself an object, is so crude. It lacks proportion, definiteness of spacial form and structure. The child is unconscious of all these defects, because he sees not the mere external product before him, but the whole mental picture which interests and holds him.

"Correction of this crudity, perfection of the picture considered as an object means the gradual development of conscious technique—the power of seeing the picture produced by itself as it is to the eye, not simply as it is to the whole of experience; and the power to control the movements of the hand and eye by this visual picture as a standard. This involves a certain separation and abstraction. The eye activities and their resulting values, have to be set free from their close unification with the sense of touch. A new

language, the visual language has to be substituted for the visual-touch-action language.

"Psychologically what takes place is a return upon an experience to see how it occurs, and the reconstruction of that experience, the making it over on the basis of the method thus brought to consciousness. The uniform law is, first the doing; then the consciousness of the how of doing; then the return of this mode into the experience to enrich and develop it, a fuller, more interesting doing.

"Hence we may lay down with practical psychological certainty the following principles regarding the relation of technique to pictorial image in drawing instruction. The beginning must always be with some imaginative free expression in which both the experience represented and the process of expression have their own adequate value to the child. . . . Every gain in technique must be at once utilized for a further and richer imaginative expression.

"It is with reference to these principles that current methods of instruction in drawing would receive most criticism from the psychologist. It is perhaps natural that the drawing teacher, the author of text-books should be most interested in the production of a good picture, viewed from the standpoint of results or the object as an object, and hence should isolate the technique, or method of reaching such good external products, fixing his attention upon that to the comparative neglect of the psychical condition of the pupil, or to the conditions which will give free play of imagery. But those who are interested in drawing, not as an end in itself, but because of its place in education as a whole, must insist upon the proper psychological correlation of this study; must insist upon the function of technique, as subordinate to imaginative expression, and as effecting the transition from one such expression to another.

"The following means of developing technique in its proper place may be indicated. First, foremost and all the time: Incidental criticism of products of imaginative expression. The crude picture does not adequately represent the child's own image. It comes far short in some directions; it distorts in others. Questions and suggestions

will bring the child to realize the discrepancy between what he meant to do, and what he has actually done. This makes him turn around upon his image, reflect upon it, define it more accurately, and make him alert for the differences between false and adequate expression. When the child comes to have the habit of looking at his own products, of comparing them with his original image and of criticizing one by reference to the other (without being unduly discouraged and thus paralyzed) the battle for technique is, in principle, won. . . . The crying evil is the abstraction of the technique, making it in reality only a means toward the true end—free expression—an end in itself." (John Dewey, *Imagination and Expression,* Kindergarten Magazine, September, 1896, pp. 61–69.*)

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Rhythmic and Musical Activities.—Young children enjoy activities which seem to have no other reflex than the pleasure which comes from the exercise of the muscles. This pleasure often expresses itself naturally in bodily rhythms such as hopping, skipping, marching, and so on. The aim of work in music is to stimulate these natural rhythmic activities, so as to convert them into art forms governed by order or regularity. Rhythm, in the art sense, is not to be thought of as a mere mechanical regularity; it is the outer

*By permission Kindergarten-Primary Magazine.

expression of an inner control, which, by some subtle recognition of proportion, expresses itself in rhythmic cadences. In the development of musical appreciation then, music used as a stimulus to activity should precede the passive form of enjoyment which comes through listening to music. The free rhythmic responses of the whole body will gradually develop into various dance forms. If children are simply stimulated by various musical rhythms which appeal to them, and are encouraged to respond in the manner most natural to them, they evolve a variety of original and graceful rhythms. The type of music chosen for this initial work should be simple, of strongly marked and suggestive rhythms, presenting strong contrasts. For this reason folk music is especially valuable, since it is free from the subtleties of melody and rhythm characteristic of much of the modern music. Vocal rhythms may also be developed into chants, songs and the rhythmic recitation of poetry. Another provision for active response to musical rhythms, requiring more control than the bodily rhythms, is the accompaniment of the piano or other musical instruments by instruments of percussion such as drums, cymbals, castanets, and simple toy musical instruments. As children progress in rhythmic ability, it is possible to develop a toy orchestra of real musical value. In music work developed along these lines technique will be supplied as it is needed for the proper advancement of musical ability; the technique is developed out of the subject, instead of the music out of the technique, as is so frequently the case in music study. As the children are encouraged to express their thoughts and feelings freely in musical form in the course of the work many original songs and dances should emerge.

This free expression of musical experiences by movements, and the composing of dances and songs, makes a safe foundation for ear training of a more detailed and deliberate character. By means of it children may be led consciously to listen with enjoyment to what a composer has written, to understand and appreciate it, and finally into the analytic study of music.

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The School Festival.—The sense of the social value of art should be restored by the school. Any group activity of a joyous character celebrating some event or fact of common value is the natural soil of artistic creation. A significant characteristic of the arts in their earlier form was the predominance of the festal element. Tribal episodes or traditions were perpetuated by community celebrations in which music, poetry, the dance and dramatic representation were appropriately united. Our holiday celebrations are pitiful survivals of these tribal celebrations in a modern work-a-day world which has forgotten the intimate connection between play and art. In school we should restore the festal element to art. Festal celebrations of holidays worked out as group projects, and embodying in some concrete form the common expression of the group, and expressed in a form appealing to the group as a whole, might do much to restore a sense of the art value to the barren, unimaginative celebrations by which we at present mark our festal days. "What we have failed to recognize adequately in our education is just this educative power of joy. And what we lack in our schools we lack also in our life—the joy of refined and edifying leisure activities; such joy as was expressed in the folk festivals of the past through folk song, folk dance, folk drama, and folk ritual; such joy as expresses itself for the little child in the folk play of the

nursery, with its incomparable charm and gaiety in song, dance, drama, and ceremonial. These are perishing together. Unless the school and the public playground, the settlement and recreation center, can restore this joy of self-activity and ingenious play, there is little prospect that it will be restored to us in any other way. . . .

"This defect in our school life, as in our social life, that it communicates no quickening sense of the poetry and adventurousness of life, is inseparably bound up with its neglect of the emotions. Our education runs to brain and starves the feelings; true, it strives more and more to involve the hand in the educational process; but it slights the heart, the imagination, and the creative and dramatic nature of the child. These, too, must be nurtured by 'doing,' by calling into activity the natural impulses out of which play and art have developed in the past. . . .

"Is it too much to hope that, after two hundred and fifty years of overwork, which have left their deep furrows of joylessness and premature age upon so many of our native-born people in town and country—and especially upon the farmer folk of the country—the American people may be rejuvenated by a return to the slighted arts of play? We may explain and excuse our lapse from virtue in this respect; but we cannot and must not allow it to continue, for it precludes our humanization. We may wish to speak a word of apology for the harsh Puritanism which spread its blight over innocent amusements and banished the Yule-log and the May-pole; we may also plead excuse for ourselves by magnifying the vast, grim task to which we have had to put our hands; the task of taming and clearing an immense continent, making its roads and bridges, its tunnels and canals, its homesteads and cities, and of caring for its ceaseless procession of immigrants. Very well; but we must face frankly some of the actual consequences of these many decades of sobering toil. One consequence is that a great, perhaps the greater, number of our people are incapable of fruitful leisure, and bankrupt of the recreative, restorative activities of leisure. Visit a church sociable when the good townspeople sit helplessly around; visit a

children's party where the little ones wait restlessly for the ice-cream and cake; visit a Fourth of July picnic, or roam the streets of a town in the evening of Labor Day, Election Day, or (lowest depth of all) New Year's Eve, and what a pitiful spectacle of recreational ineptitude we have to reckon with!

"It is high time to recognize that under the tyranny of industrial forces which we have not learned to control to reasonable human service, and under the temptation to devote ourselves to the feverish accumulation of money, we have forsaken the fairer paths of human culture. We must return. We must recover for ourselves the lost aptitudes of the humanizing arts of life, the song and balladry, the mumming and minstrelsy, the dancing and revelry, the ritual and pageantry, which through the ages, until we yoked ourselves to the steam juggernaut of factory industry, were sources of life and health and growth to the peoples and the folk of the world, and have left a rich heritage of folk art which has been fast perishing. . . ." (P. Chubb, *Festivals and Plays*, Introduction, pp. xix–xxii.*)

"The festival becomes a means of moral education through its promotion of what may be called the three pieties, or three forms of reverence, to which it may make appeal. The first of these we may name natural piety, meaning thereby a feeling for the ordered and rhythmical life of nature, that sense of universal and cosmic law ruling our lives which is hinted at in the largest way by the sequence of seasons, the life and death and rebirth of the Power behind our human life. This should carry with it a sense of our human dependence upon the majestic laws which rule Nature, reinforced by the admiring and wondering sense of the beauty and bounty of the earth as an expression of this life and law. It is in this natural piety that the great historic festivals of the past had their origin; and in such expressions of it as are to be found in the lovely story of Demeter and Persephone we have a classic theme which is still fresh and pertinent, the poetic appeal of which can scarcely be exhausted by festival uses.

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"Passing from this to the second form of piety, which we may call human piety, we have a form of moral emotion which is still rudimentary in its development. By this human piety is meant primarily man's sense of his indebtedness to man in the past, begotten in him by a recognition of the great drama of man's slow, painful, and baffled efforts to advance in the conquest not only of nature, but of truth and justice. It is the idea which should be the underlying conception in our teaching of history, which to be fruitful in its influence must be conceived of as a great epic of human progress. . . .

"Thirdly, we have what may be distinguished from human piety in general as institutional piety—that is to say, intelligent reverence for the means whereby man has expressed his social nature in the institutions, customs, and laws of civilized life." (P. Chubb, *Festivals and Plays*, pp. 17–19.*)

The differentiation of the arts into special forms—painting, music, dancing, sculpture and the like—has tended to make of them mere accomplishments, useful in social life only in special and isolated instances. The union of the arts in a common social purpose would do much to restore appreciation of the arts as a wholesome and invigorating force in elevating social life. One of the baleful effects upon art of our modern industrial period has been the separation in thought between the useful and the beautiful, whereby the useful has become debased to the level of the vulgar, and the beautiful has been synonymous with the useless. Festal celebrations affording as they do opportunity for constructive work of various kinds in connection with an art production—the making of costumes, of scenery and the like, offer a valuable illustration of the essential union of the useful and the beautiful. Such a union gives vitality to the art work and depth and richness to the other work involved. Altogether the festival represents an opportunity for associative action on the highest level, combining as it may significant historical, social, and art values.

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CHUBB, PERCIVAL.—*Festivals and Plays.* Harper.

To recapitulate—the value of art for education lies fundamentally not in facility in various techniques, but in the fact that children through significant experiences which find their satisfaction in a variety of expressions, get a sense of the ideal characteristics of art—balance, harmony, rhythm—as factors in life. If children are to get a sense of art in its relation to life they must experience it in as many ways as possible—through creating songs, plays, poems, stories and dances. If all of these activities are frequently gathered up in the joyous celebration of some event of value to the children, we have work undertaken in the spirit of play, and play animated by the spirit of art.

Linguistic Activities.—The horizon of personal experience is narrow and most of the world lies beyond it. Since a large part of our experience has to be got vicariously from the reports of others, the means by which the experience of each person can be made to contribute to that of every other becomes of vital importance to education. Language, as we have seen, is social in its origin and is an important factor in developing social life. We cannot imagine a clearly-articulated social order without language. Under the traditional school régime the ordinary means of language development is by means of the recitation. When the recitation consists in the testimony of memorized facts in various subjects, the communication of ideas breaks the moral code of the school; but when the class is considered as a community, the use of language as a means of communication is sanctioned and encouraged. "Under the old régime it was unquestionably a most serious problem to give the children a full and free use of language. The reason was obvious. The natural motive for language was seldom offered. In the pedagogical textbooks language is defined as the medium of expressing thought. It becomes that, more or less, to adults with trained minds, but it hardly

needs to be said that language is primarily a social thing, a means by which we give our experience to others and get theirs again in return. When it is taken away from its natural purpose, it is no wonder that it becomes a complex and difficult problem to teach language. Think of the absurdity of having to teach language as a thing by itself! If there is anything a child will do before he goes to school it is to talk of the things that interest him. But when there are no vital interests appealed to in the school, when the language used is simply for the repetition of lessons, it is not surprising that one of the chief difficulties of school work has come to be instruction in the mother-tongue. Since the language taught is unnatural, not growing out of the real desire to communicate vital impressions and convictions, the freedom of children in its use gradually disappears until finally the high-school teacher has to invent all kinds of devices to assist in getting any spontaneous and full use of speech. Moreover, when the language instinct is appealed to in a social way, there is continual contact with reality. The result is that the child always has something in his mind to talk about, he has something to say; he has a thought to express, and a thought is not a thought unless it is one's own. On the traditional method the child must say something that he has merely learned. There is all the difference in the world between having something to say and having to say something. The child who has a variety of materials and facts wants to talk about them, and his language becomes more refined and full, because it is controlled and informed by realities. Reading and writing, as well as the oral use of language may be taught on this basis. It can be done in a *related* way, as the outgrowth of the child's social desire to recount his experiences and get in return the experiences of others, directed always through contact with the facts and forces which determine the truth communicated." (John Dewey, *The School and Society,* pp. 49–50.*) Nothing but experience can enable

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us to invest words with meaning. Work in gardens, shops, laboratories, walks and excursions, related home experiences —in fact any experiences may be regarded as supplying the stuff of communicable thought and therefore as having a direct bearing upon language development. Experience furnishes the broad perceptual basis upon which verbal knowledge may safely be based. When children have a varied background of acquaintance with realities, verbal knowledge comes, as it should, as an extension of interpretation and of experience, not as a substitute for it. It is the task of the teacher to seize upon every occasion in which expression in speech is urgent and gratifying and make the most of it as an educational opportunity. This means that most of the language work with young children will be incidental and haphazard, consisting mainly of a spontaneous and natural interchange of ideas. If the conditions of the school room are properly set—I mean if they permit of social life—this situation takes care of itself, and needs only the seeing eye and the guiding hand on the part of the teacher. "The significant thing is that it is possible for the child at an early day to become acquainted with and to use in a personal, yet relatively controlled fashion, the methods by which truth is discovered and communicated, and to make his own speech a channel for the expression and communication of truth; thus putting the linguistic side where it belongs—subordinate to the appropriation and conveyance of what is genuinely and personally *experienced.*" (John Dewey, *The Primary Education Fetish*, The Forum, May, 1898, p. 318.)

If our aim is to prepare future members of society, everything within the school must be regulated in accordance with this aim. The present recitation scheme is anti-social. It encourages competition and places a ban upon coöperation. When the class is organized as a community, however, it is possible by means of discussions to convert the natural interchange of thought resulting from this condition into a more definite means of interstimulation and response which makes language the cement of social organization. A group of children working along common lines,

where the means exists for gathering together their ideas and organizing them through discussions, will evolve a collective knowledge of great value. When the experiences of the several children are pooled in this way and subjected to the test of critical examination and interpretation, errors are weeded out and a body of tested knowledge is gradually built up. The reflex of this method of work upon thinking is very great. The thought processes of one child are refined and corrected in a very salutary way when constantly checked up by the facts and suggestions of other children. Unfounded opinions give way in favor of those which are supported by facts. Moreover these discussions afford the teacher an excellent opportunity to gauge the mental and social development of her group and to supply suggestions that will arouse desirable responses. The total effect of such work is the development of a wholesome public opinion and a strong community solidarity which may be made an effective force in fostering the growth of the social spirit.

The question of language affects very closely the matter of the communication of information by the teacher or by means of books. It is necessary for the teacher always to have in mind a clear-cut conception of the particular function of information in a plan of education in which activities form the central rôle. The problem concerns itself with adjusting more abstract and remote experience to that which is vital and personal. "Many questions of instruction are bound up also with the matter of the relation of information or communicated knowledge, to personal acquaintance. A flavor of the second-hand, derived, and more or less conventional hangs about information. Its subject-matter is not so vitally lived through, so intimately appreciated, as that of familiar acquaintance. Any examination of prevailing modes of instruction will show that the mere bulk of matter communicated in books and lectures tends to swamp the native and active interests operative in intelligent behavior and in the acquaintanceship it brings. Then this matter remains unassimilated, unorganized, not really understood. It stands on a dead level, hostile to the selective arrangements characteristic of

thinking, matter for memorizing rather than for judgment, existing as verbal symbols to be mechanically manipulated rather than genuine realities, intelligently appreciated. Yet without this communicated matter the circle of personal acquaintance is very narrow and superficial, and personal activity hardly gets above the place of routine. The solution is found in realizing that social communication is a very real factor in personal doing and acquaintance. The educational aim is not to multiply information for the sake of information, nor yet to try to exclude it or narrow it down as much as possible. It is to fuse the transmitted matter and the matter of direct behavior and emotional response with as intimate union as possible so that the former will gain force, vivacity, directness from the latter, while the former is insensibly but continually extended and deepened by the latter. In short, the common error does not consist in attaching too great importance to transmitted facts and ideas, but in presenting them in such an isolated way that they are not spontaneously welded with the intense, though narrow matters of direct concern." (John Dewey, *Knowledge,* Cyclopædia of Education, p. 613.*)

"When considered in its relation to experience, information becomes a valuable, indeed, an indispensable, tool in expanding experience. Activities are not educational ends; they are only means. It is only when activities are oriented by a liberal scheme of related subject-matter that they arise above the level of training and become really educative. 'How shall we treat the subject-matter supplied by text book and teacher so that it shall rank as material for reflective inquiry, not as ready-made pabulum to be accepted and swallowed just as supplied by the store?'

"In reply to this question we may say (1) that the communication of material should be *needed.* That is to say, it should be such as cannot readily be attained by personal observation. For teacher or book to cram pupils with facts which, with little more trouble, they could discover by direct inquiry, is to violate their intellectual integrity by

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cultivating mental servility. This does not mean that the material supplied through communication of others should be meager or scanty. With the utmost range of the senses, the world of nature and history stretches out almost infinitely beyond. But the fields within which direct observation is feasible should be carefully chosen and sacredly protected.

"(II) Material should be supplied by way of stimulus, not with dogmatic finality and rigidity. When pupils get the notion that any field of study has been definitely surveyed, that knowledge about it is exhaustive and final, they may continue docile pupils, but they cease to be students. All thinking whatsoever—so be it *is* thinking—contains a phase of originality. This originality does not imply that the student's conclusion varies from the conclusions of others, much less that it is a radically novel conclusion. His originality is not incompatible with large use of materials and suggestions contributed by others. Originality means personal interest in the question, personal initiative in turning over the suggestions furnished by others and sincerity in following them out to a tested conclusion. Literally, the phrase 'Think for yourself,' is tautological; any thinking is thinking for one's self.

"(III) The material furnished by way of information should be relevant to a question that is vital in the student's own experience. What has been said about the evil of observations that begin and end in themselves may be transferred without change to communicated learning. Instruction in subject-matter that does not fit into any problem already stirring in the student's own experience, or that is not presented in such a way as to arouse a problem, is worse than useless for intellectual purposes. In that it fails to enter into any process of reflection, it is useless; in that it remains in the mind as so much lumber and débris, it is a barrier, an obstruction in the way of effective thinking when a problem arises." (John Dewey, *How We Think*, pp. 197–199.*)

Information which simply rehearses experiences already

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had should therefore be used with discretion. If a child has had a vivid first-hand set of experiences, normally his own memory should be vigorous enough to recall the images in their proper sequence. An over-use of such recall in verbal form is either stultifying or boring. However, occasionally, as a stimulus to a hazy memory, it may be of value to recall facts in their proper order. The great functional value of information is, however, not repetition of experience but interpretation of it. An isolated fact is without meaning. One does not understand anything unless one understands the relationships involved in that thing, and conversely to see a fact in its setting of implied relationships is to throw a flood of illuminating light upon it and invest it with meaning. The best equipped and ready-working mind is the one which sees deepest and furthest into relationships. With young children the problem of information will be concerned mainly with making explicit the relationships involved in the child's own familiar world, thus giving him a sense of the values bound up in it, but care should be taken even in this early period not to limit the matter of information too strictly to what is known and familiar. Realization of relationships develops directly by a process of comparison. We do not know the here and now until we know the distant and past. Information may therefore present facts relating to matters at a distance which throw familiar things into sharp contrast, thus bringing to the child's mind the conception that events are the result of a certain set of conditions, and vary with those conditions. It may present related material from past history, thus giving the contrast due to development through time. It might emphasize the interdependence of things by setting up a hypothetical case in which a certain factor of present day life is lacking, and allow the child to determine the result that would follow. It might bring out relationships in the present in such a way as to show up their inadequacy because of certain unsatisfactory conditions and allow him to hazard a suggestion as to how they might be improved. In fact any interpretation of experience which focusses the attention of the child upon the processes of experience is

within the province of information as an educational tool. If such information given by the teacher not only answers inquiries arising from experience, but suggests others as the logical next step to those which they have answered and gives them to the child to take back and answer by further investigation and experimentation in his own experience, the gap between real and second-hand experience is bridged and information becomes vital and suffused with emotional warmth. The fundamental consideration in the whole matter is that familiar first-hand experience is not an end, it is only a means, and the child must be led out from it by constant additions in one form or another through information. In a scientific pedagogy of which the general aim is to develop the child's sense of relationships, information may gradually lead the child to perceive the network of relationships underlying the apparently disconnected parts composing the world of man and nature.

What has been said above with regard to information applies not only to that given verbally by the teacher, but also to information from books read to the children by the teacher or to be read by the children themselves when they have mastered the symbols. At present, owing to the generally prevailing faulty knowledge of child nature due to the late development of psychology as an objective science, it is difficult to find suitable information books to be used by children. Most of those available are either drably didactic, developed along the logical lines of adult reasoning and therefore giving solutions to problems, not stimulating thought, or else they attempt to conceal the bitter morsel of information to be conveyed in a sugar coating of story form, —a device unnecessarily confusing and therefore irritating to a child on a serious quest for information. What is needed is a kind of information material which applies the newer ideas of the psychology of childhood. One of the educational contributions of experimentally conducted schools will no doubt be a new type of information books which have been tested out in actual experience with children.

READING

CHUBB, P.—*The Teaching of English.* Macmillan.
Chap. II. The Limitations of the School in dealing with Illiteracy.
Chap. III. Early Formative Phases.
DEWEY, JOHN.—*How We Think.* Heath.
Chap. XIII. Language and the Training of Thought.
Chap. XIV. Observation and Information in the Training of Mind.
Chap. XV. The Recitation and the Training of Thought.
LEONARD, S. A.—*English Composition as a Social Problem.* Houghton.
Chap. I. The Sources of Composition Projects in Child-Activities.
Chap. II. The Social Group as an Agent in Expressional Standards.

Composition.—The early stage of children's language development might be called the stage of unconscious technique. The stories told spontaneously by children are very revealing as an index of childish interest and understanding, and much more should be made of them than is at present by schools as valuable contributions to child psychology. These stories form the natural first step in oral composition and by skilful treatment on the part of the teacher they may be made a fruitful means of clarifying thought processes. If story-telling is made a really social experience, each child's contribution is tested by his ability to get his story over to his audience, and this is a very efficient means of improving the organization of thought and the use of appropriate language. The development of power on the part of the group to analyze the performance of a child, and to evaluate its elements constitute an excellent discipline of their judgment.

What has already been said under *Linguistic Activities* applies not only to the early stage of language development but offers certain underlying principles guiding the devel-

opment of language expression of older children. Creative power in language, as in other fields, can be fostered only by providing an environment which encourages it. The necessity for a full, rich experience cannot be too strongly emphasized in its effect upon language development. Originality, spontaneity, and invention are impossible without a varied and well-assimilated experience. Actual experiences lead naturally to imaginative interpretations; what the child takes in will find its way out in the form of language expression whenever such expression is appropriate. In a school environment so organized that the channels of expression and communication are kept wide open, there are innumerable occasions calling for expression in language either verbal or written.

With increasing maturity and the corresponding increase of the span of attention and interest, the child's original psychical impulse to expression may be expanded and organized in various ways. The main thing is that the forms of expression shall always be those which appeal to the child as having real value, as being really worth while. It is only when children's expression is undertaken with a clearly recognized purpose on the part of the child that we can hope to escape from those elaborate productions of insincerity that pass for compositions in so many schools. It is in the development of the expressional powers of children so that expression liberates and vivifies thought that the utmost ability of the teacher is required. For just as undue and premature attention to form tends to inhibit thought and render it sterile, so because of the mutually interactive nature of thought and expression, insufficient attention to technique tends equally to arrest thought, leaving it vague and hazy. The task of the school is so to modify the speech habits of children that their language, while retaining the force, vitality and variety of spontaneous expression, yet becomes a more and more flexible and delicately adjusted instrument of thought. On the expression side this means rendering language more precise and accurate; on the thought side it means the formation of habits of consecutive discourse involving the proper organization of thought.

READING

CHUBB, P.—*The Teaching of English,* Macmillan.
Chap. VIII. Composition, Oral and Written, in the Primary Grades.
COOKE, H. C.—*The Play Way,* Stokes.
Chap. IV. Littlemen Lectures.
Chap. V. Ilonds and Chap Books.
Chap. IX. Playmaking.
COOKE, H. C.—*The Perse Play Books,* I-V, W. Heffer & Son, Cambridge, England.
LEONARD, S. A.—*Composition as a Social Problem,* Houghton.
Chap. III. Organization of Ideas.
Chap. IV. Evolution and Attainment of Expressional Standards.

Literature.—Literature is an art. In order that it may have an art value in the school it is necessary that it be presented in a way consistent with the general principles of art. Literature as an art is the expression in language of man's thoughts and feelings; it records his hopes and fears, his highest aspirations and his deepest despair. It records truth, but truth colored or interpreted by personal appreciation and emotion. The material of literature is that of the actual world selected, freed from the temporary and accidental, and expressed in a suitable art setting. It is the projecting and refining, by means of the imagination of such experiences as man has had; in short, it is experience idealized in one way or another. This view of literature has a direct bearing upon its use in the schoolroom. In the first place, it means that literature should not be employed as a point of departure for instruction. It should represent, on the contrary, the gathering together of experience into a vivid and idealized form through the medium of feeling and the imagination, a heightening of elements which the child already appreciates as having value. When children have experienced the reality, the presentation of its imaginative idealization

makes a strong emotional appeal. Used in this way literature bound to the child's life by his strong sense of reality is made a wholesome force in developing personality, instead of being the weak sentimental thing it so often is, offering to the child little more than a release from the humdrum experiences of everyday life. Our general aim in education is to explain reality. Literature to have a legitimate place in school work must share in this general aim and have some unique service to render in extending the experience of children. It has a unique service to offer—that of deepening their appreciation of the ideal factors implicit in the affairs of the world.

This point of view should govern the kind of literature we give to children. The choice of literature for children has been confused by lack of knowledge of child nature and what it demands at various stages of growth. It has too frequently rested upon false psychological notions of the imagination. This has been looked upon as a faculty isolated and complete in itself, which had to be fed, especially in early childhood, with fantastic and bizarre subject-matter. It is for this reason among others that fairy-tales and myths have so often assumed the primary place in courses of literature for young children. The young child has, it is true, a full-functioning imagination; the imagination must be one of his chief means of reconstructing experiences not immediately presented to the senses; but the imagination builds with the materials which experience has gathered. The safest and soundest basis for imagination is a rich, absorbing, varied experience with reality. It acts as a constant check upon the fantastic morbid flights of fancy indulged in by children whose imaginations are deprived of their legitimate functioning through lack of experience. "The healthy imagination deals not with the unreal, but with the mental realization of what is suggested. Its exercise is not a flight into the purely fanciful and ideal, but a method of expanding and filling in what is real. To the child the homely activities going on about him are not utilitarian devices for accomplishing physical ends; they exemplify a wonderful world

the depths of which he has not sounded, a world full of mystery and promise that attend all the doings of the grown-ups whom he admires. However prosaic the world may be to the adults who find its duties routine affairs, to the child it is fraught with social meaning. To engage in it is to exercise the imagination in constructing an experience of wider value than any the child has yet mastered." (John Dewey, *How We Think*, p. 166.)

The educational belief, now exploded by the modern point of view in psychology, that children recapitulate the experience of the race has also had an effect upon the development of courses in literature. As children in their experience were thought to go through various culture epochs, series of myths, fables, hero-tales and so on were arranged in accordance with this view. The possible result of such an accumulation of imaginative material divorced from actual experience is to swamp children in unreality. Our educational aim is to clarify a child's sense of reality; any use of educational material which confuses the sense of reality, and leads him to confound fact and fantasy is illegitimate. There is no psychological justification for identifying imaginative power simply with interest in the weird, the fanciful, and the unreal as represented in fairy-tales and myths, or for supposing that it is cultivated by imaginative interpretations remote from experience. Undoubtedly myths and fairy-tales have a place in the education of children, but they need to be balanced by stories and information that bring the child into fuller and more definite relations to the world of reality in which he is to live. Normal children, who receive the stimulation of a rich and varied environment, need to have their images brought out and cleared up, rather than to have them merely excited by fanciful subject-matter which has no relation to life.

All folk literature represents a symbolism deeply fraught with sociological significance; it is indigenous to a certain stage of culture. Many of the myths portray social relationships which though perfectly appropriate to the age of which they are an expression, are no longer

looked upon as desirable. Surely it is unwise to make children's first excursions into the ideal world represented by literature, with the accompanying vivid first impressions, along such mistaken routes. Such stories should at least be reserved for a much later period when the child's maturing powers, his knowledge of present-day social standards, his knowledge of forms of social life as expressions of various stages of the world's history, enable him to understand them in their proper historical and social setting. This consideration of literature in connection with the social life of which it is an expression is an important and appropriate use of literature for older children often opening to them the doors to imaginative participation in the life of the people studied, and thus becoming a strong factor in creating sympathetic appreciation of it.

Recent researches into the psychology of the unconscious life have made clear how many of the apparently harmless experiences of children have been the cause of submerged ideas which in later years produce obscure and baffling pathological results. The undiscriminating use of fairy-tales has in some cases been found to be a contributing cause. Stories of treachery and cunning, of cruelty and pain, grim tales of blood-feuds, and all such gruesome and horrible accounts in which myths and fairy-tales abound, make a terrible impression upon sensitive children, and may easily be the cause of neurotic fantasies and morbid imaginative fears. At present our knowledge of all this side of life is so vague that it is certainly wiser to be on the safe side and avoid imaginative literature of this sort.

The moral of this discussion is not, as the emphasis might seem to imply, that we break with tradition. The present is not isolated from the past, and to fail to utilize the great heritage that has come to us from the past is to retard progress. Great masterpieces are not mere records of a time that is forever gone; they have survived because they image forth in significant form something that is yet to be, and thus transcend time. As such they

are fit matter for the education of the young. But there is the conventional attitude toward tradition which accepts everything indiscriminately simply because it is tradition, and there is a more intelligent use of tradition which selects from the great wealth of material available such as will best serve its purpose. The productions of the past become wholesome stimuli only when the background of experiences of the reader in some way makes possible a correspondence between the emotional content of the reader and that expressed by the writer so that he responds in a whole-hearted manner to the matter recorded. When a piece of literature fails to awaken desirable responses from children it is an indication that we have somehow failed in our selection. To continue in such a course is to run the risk of establishing a strong distaste for literature instead of an intelligent enjoyment of it.

If we argue for this critical assessment of traditional literature, what shall be our attitude toward those modern imitations of old forms which are now flooding the market? The old literature represents a spontaneous outburst of feeling; as a consequence thought and its expression are welded together as one, and expression takes on a character of inevitability. The modern reproductions are often nothing but conscious imitations of the form lacking the sincerity and vitality of the original. There seems to be little excuse for using them. Modern stories and poems conceived in the spirit of the traditional only are literature, and only such deserve a place in school work.

The selection of literature that is really educational according to our newer conceptions of education, on the whole presents a field which is as yet uncultivated. Although the choice of literature must be determined experimentally, the general type suitable for children is straightforward, direct, dramatic in quality, and free from subtle symbolism. When personification is employed, if we are sure that the children understand it as such, they are in no danger of confounding fact and fancy, and they enjoy

it in the art sense as an imaginative representation. A discriminating selection of traditional literature will include suitable myths, fairy-tales, folk stories and the like, but it will balance these by a generous use of other types of literature, both old and modern, which give a heightened sense of the real romance of the real world.

Besides the original spontaneous dramatization that children engage in, they often enjoy turning the materials of stories read to them into active form by dramatizing them. This is a very legitimate use of literature in school. It is the child's way of making the material his own; of experiencing it; and it may be made a valuable educational instrument, provided it is carried on under the general point of view that the form and direction of activity is not to be impressed from without, but is to be the free expression of the children's conceptions. When this is so, the reproduction of stories in dramatic form gives a very true index of the children's understanding of the material read. This point of view does not mean, of course, that the teacher should not make suggestions; it means only that the general course of the activity should be dictated by the children. This kind of activity forms a center for a great number of related activities of a constructive nature, the preparation of costumes, and of other materials necessary to play. As a group activity undertaken with a common purpose it is also a powerful means of developing the social spirit.

READING

BRUCE, H. ADDINGTON.—*Handicaps of Childhood.* Dodd, Mead.

Chap. VIII. Fairy Tales That Handicap.

COOKE, H. C.—*The Play Way,* Stokes.

Chap. VII. Acting Shakespeare in the Class Room.

Chap. VIII. Miming and the Ballads.

DEWEY, JOHN.—Article on the *Culture Epoch Theory.* Cyclopædia of Education, Macmillan.

McClintock, P. L.—*Literature in the Elementary School*—University of Chicago Press.

Mitchell, Lucy Sprague.—*Here and Now Story Book.* Dutton.
Introduction.

Rank, O.—*Myth of the Birth of the Hero*—Nervous and Mental Disease Monograph, No. 18.

Ricklin, Franz.—*Wish Fulfillment and Symbolism in Fairy Tales.* Nervous and Mental Disease Monograph, No. 21.

Enough has perhaps been said to indicate the nature of the play environment to be provided and the aims to be sought. Let the children explore the world of reality as widely as possible, let them experiment with things freely, let them reproduce their impressions in as many creative art forms as possible. Supplement this active work wherever possible with related subject-matter that explains and extends the first-hand experiences which the children are gaining. The whole work will take its motivation and direction in guiding the natural capacities and interests of the children into functional relations with the world of man and nature. These early school experiences should be infinitely varied, touched lightly, and left behind—for this is the natural way of childhood.

Activity as Work

Play activities are occupations pleasurable in themselves; pleasure comes as a direct reflex of the bodily activities. The motivation of activity toward the accomplishment of purposes is, however, characteristic of the human intellect. With the growth of the child's mind in knowledge and power, curiosity develops a more intellectual form, the ends of inquiry are projected into the abstract, and the pleasurable emotional reflex is transferred from activity for its own sake, into an emotional reflex from activity directed toward the realization of purposes. With increasing ability in technique, interest in the process for its own sake, which is characteristic of the play impulse, tends to pass over into an appropriate

interest in the product, which is at the foundation of the instinct of workmanship. Just as the play school aims to give young children a rich play experience, schools for older children should provide an environment fitted to develop the best characteristics of the instinct of workmanship. This does not mean necessarily any sharp differentiation in kind between the earlier and later activities provided by the school. The course of a developing experience is continuous. The simple concrete projects of the early period are the matrix out of which the later, more refined, more controlled forms should grow. All the types of activity noted under play should therefore form a part of the later work of the school.

The gradual development from the play interest to the work interest involves the question of the supplying of technique by the school. It cannot be too strongly emphasized how dependent the value of the school as a work laboratory is upon the extent to which the play school fulfills its function. We have seen that psychologically every increase in control is necessarily marked by a corresponding inhibition of responses inappropriate to achieving the desired end. Through the constant working of this process the channels of expression are deepened and narrowed. If the avenues of expression are kept freely open in early childhood, the play of little children develops a broad basis of interests, and some facility in a variety of techniques from which the later more individual interests of the child may make intelligent selection. It is obviously only when the basis of early experimentation is broad and varied that this result can come about. If the avenues of expression are restricted early, the selection of later activities is controlled not by the purposes and interests of the child, but by technical ability. The principles of work, therefore, should not be introduced too early; it is the duty of the school to prolong the plasticity of childhood as long as possible. Consideration of the opposite aspect of the matter is, however, also necessary. Interest and ability to satisfy it seldom form an equation; indeed the constant attention to equate

them forms a powerful stimulus constituting the educative value of effort, which is an attempt to arrange the means for the adequate accomplishment of the desired end. The margin of difference between interest and the power to realize it, however, must not be too great, or the stimulus to effort disappears. We cease to take interest in anything we see no prospect in accomplishing. Technique should, therefore, not be withheld too long. The greatest acumen and skill is needed on the part of the teacher to determine just when technique is needed, just how much is needed to keep activity up to the highest level of achievement, and by what methods it may be so economically employed that it becomes an aid to developing experience instead of a break in the continuity between purpose and its effective realization.

The selection of activities during the play period is indicated predominantly by psychological consideration. Although the final criterion for any work undertaken by the school is of necessity psychological, as the experience of children broadens through the gradual expansion of their environment, activities should be chosen more and more as a means of organizing their powers in social directions. Our general educational purpose of making clear to children the fundamental relationships implicit in the complex social life into which they are being initiated should govern our choice of occupations out of the multitude of opportunities for activity presented by the present day environment. Since upon these children will fall the responsibility of maintaining the activities by which society is advanced, it seems evident that they should have insight into those fundamental processes which are indispensable to the continuance of associated life, and into their relationship to social advancement. The consequences are such as to affect the very nature of social life; therefore education cannot neglect this responsibility. There is no better way of initiating children into the complex industrial situation of the present than to give them experience in its fundamental processes. *It is only by thus coming into active relations with the*

fundamental necessities of community life, by being confronted by its problems, that children can understand them. "We must conceive of work in wood and metal, of weaving, sewing, and cooking, as methods of living and learning, not as distinct studies. We must conceive of them in their social significance as types of processes by which society keeps itself going, as agencies for bringing home to the child some of the primal necessities of community life, and as ways in which those needs have been met by the growing insight and ingenuity of man" (John Dewey, *The School and Society,* p. 11). Children who have experienced in simplified form the complete round of activities from the production of the raw material and its manufacture into forms related to need and use, have had an experience which gives the key to their understanding of the complex industrial processes seen in their community. If this constructive work of the school which is really a simpler statement of present-day processes involving their fundamental principles, is constantly reinforced by trips to industrial plants, children are prepared to understand the meaning of even complex machinery, to see its purpose, the principles upon which it is controlled, and so on. The contrast between their simple hand-made products and the achievements of modern machinery forms an illuminating object lesson showing the marvelous strides which the inventive genius of man has made in perfecting the means of satisfying his purposes.

Work with the processes that lie at the heart of the industrial situation may be made an experience of the highest educational value, since it is possible to develop the work purely from the point of view of its educative effect and to attach to it all that wealth of cultural matter which gives it social significance and which is usually lacking in occupations carried on outside of school. "The continually increasing importance of economic factors in contemporary life makes it the more needed that education should reveal their scientific content and their social value. For in schools, occupations are not carried on for pecuniary gain but for their own content. Freed from extraneous associa-

tion, and from the pressure of wage-earning, they supply modes of experience which are intrinsically valuable; they are truly liberalizing in quality." (John Dewey, *Democracy and Education*, p. 235.) All occupations are saturated with facts of deepest social import and as children advance in maturity, their experiences should be more and more a means of revealing to them the historic, economic, social and scientific factors implicit in them. In social life to-day we have separated hand work and brain work. The only hope for the future of an industrial democracy lies in so educating our children that they become more and more sensitive to the social significance of their day to day experiences. It is only by thus releasing experience from its narrow utilities that we can hope to make schools centers of art, science and social interpretation. "There is always danger that an educational preparation for industry shall become over-technical and utilitarian, carrying back into the school the most undesirable features of the present industrial régime. Our protection lies in making the industrial activities in the school artistic. Or there is danger that the harshly utilitarian be escaped only at the risk of an obviously amateurish fooling with occupations—a reduction of the play idea to make believe and idle pretense. The remedy once more is to make the play of childhood productive, efficient of results: to make it art. This alone refines and idealizes the harsher and duller features of labor while it directs and articulates the play spirit, which, pursued apart from productive control of physical materials, becomes weak and sentimental. Art is like industry in that it must achieve visible and tangible embodiment ministering to human use—a result so visible and tangible as to involve judgment by palpable standards, while so ministering to the human spirit as to carry its own standard with it in the joy of thought it expresses and feeds. Like industry it needs definite tools, accurate processes, an exact technique. But in elevating the materials, the technique, the outward means and ends, into the region of personal imagination, it gives an education which educates not alone to specific utilities and commodities, but to the widest of

all uses; to the just apprehension of values whenever and wherever presented." (John Dewey, *Culture and Industry in Education,* Educational Bi-monthly, October 1, 1906, p. 9.*)

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Science

The scientific knowledge which accrues as a result of more or less random investigations and experimentation during the play period may be greatly extended

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and deepened in significance as children mature and engage in more purposeful activities. All occupations, as we have seen, rest upon scientific insight and information. Just as the race arrived at its scientific conclusions through every-day experiences, children can best understand fundamental scientific principles by seeing them in their practical workings. Unless children are led to inquire further and further into the natural facts and forces involved in the occupations in which they are engaged, their work will result in mere acquisition of technical skill. One of the chief values in introducing occupations into school is that they provide natural avenues for advance into scientific principles and give a motive for becoming acquainted with them. By this method science, instead of being an abstract body of information isolated from every-day concerns and arrived at through the manipulation of peculiar apparatus, becomes a dynamic force constantly deepening the meaning of experience through showing the relationships involved in it.

In order to make clear the true relationship between science and occupations, it is necessary to rid our minds of the misconceptions that have arisen from contemplating subjects of study as isolated and complete units of knowledge, to be impressed directly upon growing minds. It has frequently been the practice of schools to begin science instruction with the rudiments of science simplified. The pupils acquire a body of technical information without ability to trace its relation to the daily occurrences with which they are familiar. Science, however, ought not to be regarded as new subject-matter, but as showing the factors involved in every-day experiences. Its function in the curriculum should be identical with that which it has performed in the history of the race: intellectual control of every-day experience through an understanding of its scientific implications. Scientific knowledge developed in this way becomes the means of revealing the world of orderly relationships underlying the apparently unrelated world of experience.

It is recognition of this point of view that has given the

impetus to general science instead of courses in specific sciences. "As an attempt to get back nearer to the world in which the pupil lives, and away from a world which exists only for the scientist, the general science tendency has, . . . its justification. But I have an impression that in practice it may mean two quite different things. It may take its departure from sciences which are already differentiated, and simply pick out pieces from them, some from physics, some from chemistry, some from physiography, some from botany, etc., and out of this varied selection form something to serve as an introduction to sciences in a more specialized form. Now this method I believe to be of the static type after all. It gives scope for variety and adaptation, and will work with the right teacher. But, urged as a general movement, I believe it retains the essential mistake of any method which begins with scientific knowledge in its already-made form, while in addition it lends itself very easily to scrappy and superficial work, and even to a distaste for the continued and serious thinking necessary to a real mastery of science.

"General science may, however, have another meaning. It may mean that a person who is himself an expert in scientific knowledge forgets for the time being the conventional divisions of the sciences, and puts himself at the standpoint of pupils' experience of natural forces, together with their ordinary useful applications. He does not, however, forget the scientific possibilities of these experiences, nor does he forget that there is an order of relative importance in scientific principles—that is to say, that some are more fundamental, some necessary in order to understand others, and thus more fruitful and ramifying.

"While, then, he may take his subject-matter from any of the ordinary and more familiar materials of daily life, he does not allow that material, in its obvious and superficial form, to dictate to him the nature of the subsequent study. It may be varnish, or cleansers, or bleachers, or a gasolene engine. But he never for a moment allows in his educational planning that thing to become the end of study; when he does, we have simply the wrong kind of

elementary nature-study over again. To him, as a teacher, the material is simply a means, a tool, a road. It is a way of getting at some process of nature's activity which is widely exemplified in other phenomena and which, when graspt, will render them more significant and intelligible. While the student's attention may remain, so far as his conscious interest is concerned, upon the phenomena directly in front of him, it is the teacher's duty to see that he gets below the surface to the perception of whatever is scientifically in the experience. This need not be labeled a principle or law—in fact, if it is so labeled at first, the name 'principle' or 'law' will be merely a label. But if further material is selected so that what the pupil got hold of before serves as a means of intellectual approach and understanding, it becomes a principle or law for him: a law of his own thinking and inquiries, a standpoint from which he surveys facts and attempts to reduce them to order. . . .

"My point may perhaps be stated by saying that the right course lies between two erroneous courses. One method is the scrappy one of picking up isolated materials just because they happen to be familiar objects within the pupil's experience, and of merely extending and deepening the range of the pupil's familiarity, and then passing on to something else. No amount of this process will make an introduction to science, to say nothing of science, for an introduction leads or draws into a subject, while the scrappy method never, save by accident, gets the pupil within range of the problems and explanatory methods of science. The other erroneous course is taken when the teacher's imagination is so limited that he cannot conceive of science existing except in the definitely segregated areas, concepts, and terms which are found in books under the heads of 'physics,' 'chemistry,' etc., and who is thus restricted to moving within these boundaries. Such a person forgets that there is no material in existence which is physical or chemical or botanical, but that a certain ordinary subject-matter *becomes* physical, or chemical, or botanical when certain questions are raised, and when it is subjected to certain modes of inquiry. What is desired of the pupil is that, starting

from the ordinary unclast material of experience, he shall acquire command of the points of view, the ideas and methods, which make it physical or chemical or whatever.

"I return to what I said . . . about the dynamic point of view as the really scientific one, or the understanding of process as the heart of the scientific attitude. What are called 'physics' and 'chemistry' deal in effect with the lawful energies which bring about changes. . . . But it does not follow that the material which is found in the text which segregates certain considerations under the head of physics or chemistry is the material to begin with. That is the fallacy against which I have been arguing. Plant and animal life, the operations of machines, and the familiar appliances and processes of industrial life are much more likely to furnish the actual starting material. What the principle calls for is that the pupil shall be led in his study of plant and animal life, of the machine and its operations, to the basic operations which enable him to understand what is before him—to be led inevitably to physical and chemical principles. Nothing is more unfortunate for education than the usual separation between the sciences of life and the physical sciences. Living phenomena are natural and interesting material from which to set out, especially in all rural environments. But they are educationally significant in the degree in which they are used to procure an insight into just those principles which are not plants and animals, but which, when they are formulated by themselves, constitute physics and chemistry. It is the failure to carry nature-study on to this insight which is responsible for its pedagogically unsatisfactory character, and the movement toward general science will repeat the failure unless it keep the goal of physical and chemical principle steadily in view." (John Dewey, *Method in Science Teaching*, Addresses and Proceedings of the National Education Association, 1916, pp. 730–733.*)

*By permission National Education Association.

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The foregoing discussions have defined the place of activity in any scientific plan of education, and they suggests the general course of its development. *Activities afford the most direct instrumentalities for the extension of experience; they are the fundamental prerequisite to learning; they offer the concrete approach to knowledge; they provide the natural centers for the organization of subjects of study.* The school subjects, as we have seen, have been evolved from occupations and they get a rational correlation and content in children's minds through association with activities. "Education *through* occupations consequently combines within itself more of the factors conducive to learning than any other method. It calls instincts and habits into play; it is a foe to passive receptivity. It has an end in view; results are to be accomplished. Hence it appeals to thought; it demands that an idea of an end be steadily maintained, so that activity cannot be either routine or capricious. Since the movement of activity must be progressive, leading from one stage to another, observation and ingenuity are required at each stage to overcome obstacles and to discover and readapt means of execution."

(John Dewey, *Democracy and Education,* p. 361.) Finally, activities offer a natural means of understanding the life of the industrial community in which the pupils are eventually to play a part. It is therefore a fundamental responsibility of the school to develop in its pupils a conception of industry as an evolving process in which its relation to the arts, sciences, history and social advancement are made apparent.

The Tool Subjects

When it becomes evident that children are ready to gain control of those instrumentalities through the mastery of which they may acquire book knowledge for themselves, work in reading, writing, spelling and arithmetic should be begun. To withhold them longer is to retard the natural progress of experience. It is necessary for the teacher to have a clear-cut point of view with regard to these subjects, otherwise she is in danger of divorcing them from the active work of the school. Independence in these subjects means mastery of the symbols of learning. Symbols, rightly employed, are most important agents in extending and controlling experience. They are the keys which unlock to the child a wealth of vicarious experience lying beyond the possible range of his limited individual experience. "There is a sense in which it is impossible to value too highly the formal and the symbolic. The genuine form, the real symbol, serve as methods in the holding and discovery of truth. They are tools by which the individual pushes out most surely and widely into unexplored areas. . . . They are means by which he brings to bear whatever of reality he has succeeded in gaining in past searchings. But this happens only when the symbol really symbolizes—when it stands for and sums up in short-hand actual experiences which the individual has already gone through. A symbol which is induced from without, which has not been led up to in preliminary activities, is, as we say, a *bare* or *mere* symbol; it is dead and barren." (John Dewey, *The Child and the Curriculum,* pp. 31–32.)

Certain conditions should be observed in the introduction and use of the tool subjects. "The conditions may be

reduced to two: (1) The need that the child shall have in his own personal and vital experience a varied background of contact and acquaintance with realities, social and physical. This is necessary to prevent symbols from becoming a purely second-hand and conventional substitute for reality. (2) The need that the more ordinary, direct, and personal experience of the child shall furnish problems, motives, and interests that necessitate recourse to books for their solution, satisfaction, and pursuit. Otherwise, the child approaches the book without intellectual hunger, without alertness, without a questioning attitude and the result is the one so deplorably common: such abject dependence upon books as weakens and cripples vigor of thought and inquiry, combined with reading for mere random stimulation of fancy, emotional indulgence, and flight from the world of reality into a make-believe land.

"The problem here is then (1) to furnish the child with a sufficiently large amount of personal activity in occupations, expression, conversation, construction, and experimentation, so that his individuality, moral and intellectual, shall not be swamped by a disproportionate amount of the experience of others to which books introduce him; and (2) so to conduct this more direct experience as to make the child feel the need of resort to and command of the traditional social tools—furnish him with motives and make his recourse to them intelligent, an addition to his powers, instead of a servile dependency. When this problem shall be solved, work in language, literature, and number will not be a combination of mechanical drill, formal analysis, and appeal, even if unconscious, to sensational interests; and there will not be the slightest reason to fear that books and all that relates to them will not take the important place to which they are entitled. . . .

"The more direct modes of activity, constructive and occupation work, scientific observation, experimentation, etc., present plenty of opportunities and occasions for the necessary use of reading, writing, (and spelling), and number work. These things may be introduced, then, not as isolated studies, but as organic outgrowths of the child's

experience. The problem is, in a systematic and progressive way, to take advantage of these occasions. The additional vitality and meaning which these studies thus secure make possible a very considerable reduction of the time ordinarily devoted to them. The final use of the symbols, whether in reading, calculation, or composition, is more intelligent, less mechanical; more active, less passively receptive; more an increase of power, less a mere mode of enjoyment. (John Dewey, *The School and Society,* pp. 104–107.*)

The gaining of automatic perfection, which is necessary to success in the tool subjects, depends upon the laws of habit-formation. Since it is impossible to develop habits without frequent repetition and since in the ordinary school experience the same situation does not recur often enough or at close enough intervals to give opportunity for the adequate development of the necessary habits, drill is necessary. Educational errors with regard to drill seem to go to two extremes: either drill is treated as an end in itself, is unrelated to the children's experience and is over-emphasized, or, in the newer modes of instruction, in reaction against this exaggeration, it is treated as of negligible importance, and dealt with only incidentally. The wiser course seems to be an intermediate one in which there is an attempt to preserve a balance between the mastery of technique and the advancement of subject-matter that is inherently significant. Drill divorced from meaningful content tends to develop a kind of routine skill, by mere imitation and constant repetition without any sensible grasp of the rationale of the operations performed. This is gained by sheer length of experience; it is unaccompanied by any of the natural joy that springs from activity spontaneously developed and rationally cultivated. There is a much higher form of skill possible which owes its development to an intelligent understanding of why it is undertaken. This makes for much more rapid development of power. The following suggestions may be helpful in bringing intelligence to bear upon drill:

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1. Drill should grow out of specific life situations that show its necessity and thus give it meaning. This means that experience precedes drill.

2. Children should be made conscious of the relation between drill and the effective carrying out of their purposes. Once children see the necessity for drill they will be willing to undergo it.

3. The proper balance should be preserved between drill and experience. Exercises to develop habits should be reduced to just the amount necessary to make them automatic. Drill should not be over emphasized. It should be confined to those things which are fundamental; an effort should be made to discover what the minimum essentials of drill are.

4. Progress in habit-formation should be measured. By this I do not mean necessarily the use of standardized tests, since these may set up a standard that may be outside the experience of any particular group of children. I mean rather some measurement devised with reference to the experience that a particular group has had.

5. Children should themselves be conscious of their progress in habit-formation. Too frequently tests are applied in school work as information for the teacher only. One of the most important uses of tests is that the child himself may realize his own success or failures in forming desired habits. If we are to make children intelligent in regard to drill, they must be made cognizant of their progress. Perhaps the best way of doing this is by having each child make a simple graph in which his learning curve is indicated. It is possible for even young children to do this successfully, and the use of the graph greatly stimulates speed in acquisition. The graph should be discussed frequently by the teacher and the child, and he should gradually be able to analyze out of his performance the elements leading to success or failure.

6. Children should not be forced arbitrarily to follow certain forms; opportunity should be given them to evolve better methods of doing their work. What may be an

efficient method of drill for one child may not be equally so for another.

Reading.—Reading involves certain complicated eye adjustments, and is a severe mental strain. Too early reading and too great application to it are the frequent cause of eye-strain and nervous fatigue, so that best pedagogical thought now supports postponing learning to read until after the first year in school. Much more practice should be given in silent reading, and oral reading, when engaged in, should be motivated.

In a scheme of education which makes knowledge an end in itself, it is natural that the means by which knowledge is to be gained should be the first consideration of the school. Hence in traditional education "It is almost an unquestioned assumption, of educational theory and practice both, that the first three years of a child's school-life shall be mainly taken up with learning to read and write his own language. If we add to this the learning of a certain amount of numerical combinations, we have the pivot about which primary education swings. Other subjects may be taught; but they are introduced in strict subordination. . . . What can be said against giving up the greater portion of the first two years of school life to the mastery of linguistic form? In the first place, physiologists are coming to believe that the sense-organs and connected nerve and motor apparatus of the child are not at this period best adapted to the confining and analytic work of learning to read and write. There is an order in which sensory and motor centers develop—an order expressed, in a general way, by saying that the line of progress is from the larger, coarser adjustments having to do with the bodily system as a whole (those nearest the trunk of the body) to the finer and accurate adjustments having to do with the periphery and extremities of the organism. The oculist tells us that the vision of the child is essentially that of the savage; being adapted to seeing large and somewhat remote objects in the mass, not near-by objects in detail. To violate this law means undue nervous strain: it means putting the greatest tension

upon the centers least able to do the work. At the same time, the lines of activity which are hungering and thirsting for action are left, unused, to atrophy. . . . Forcing children at a premature age to devote their entire attention to these refined and cramped adjustments has left behind it a sad record of injured nervous systems and of muscular disorders and distortions. While there are undoubted exceptions, present physiological knowledge points to the age of about eight years as early enough for anything more than an incidental attention to visual and written language form.

"We must not forget that these forms are symbols. I am far from deprecating the value of symbols in our intellectual life. It is hardly too much to say that all progress in civilization upon the intellectual side has depended upon increasing invention and control of symbols of one sort or another. Nor do I join in the undiscriminating cry of those who condemn the study of language as having to do with mere words, not with realities. Such a position is one-sided, and is as crude as the view against it which is a reaction. But there is an important question here: Is the child of six or seven years ready for symbols to such an extent that the stress of educational life can be thrown upon them? If we were to look at the question independently of the existing school system, in the light of the child's natural needs and interests at this period, I doubt if there could be found anyone who would say that the urgent call of the child of six and seven is for this sort of nutriment, instead of for more direct introduction into the wealth of natural and social forms that surrounds him. No doubt the skilful teacher often succeeds in awakening an interest in these matters; but the interest has to be excited in a more or less artificial way, and, when excited is somewhat factitious and independent of other interests of child-life. At this point the wedge is introduced and driven in which marks the growing divorce between school and outside interests and occupations.

"We cannot recur too often in educational matters to the conception of John Fiske that advance in civilization is an

accompaniment of the prolongation of infancy. Anything which, at this period, develops to a high degree any set of organs and centers at the expense of others means premature specialization, and the arrest of an equable and all-round development. Many educators are already convinced that premature facility and glibness in the matter of numerical combinations tend toward an arrested development of certain higher spiritual capacities. The same thing is true in the matter of verbal symbols. Only the trained psychologist is aware of the amount of analysis and abstraction demanded by the visual recognition of a verbal form. Many suppose that abstraction is found only where more or less complex reasoning exists. But as a matter of fact the essence of abstraction is found in compelling attention to rest upon elements which are more or less cut off from direct channels of interest and action. To require a child to turn away from the rich material which is all about him, to which he spontaneously attends, and which is his natural, unconscious food, is to compel the premature use of analytic and abstract powers. It is wilfully to deprive the child of that synthetic life, that unconscious union with his environment, which is his birthright and privilege. There is every reason to suppose that a premature demand upon the abstract intellectual capacity stands in its own way. It cripples rather than furthers later intellectual development. We are not yet in a position to know how much of the inertia and seeming paralysis of mental powers in later periods is the direct outcome of excessive and too early appeal to isolated intellectual capacity. We must trust to the development of physiology and psychology to make these matters so clear that school authorities and the public opinion which controls them shall have no option. Only then can we hope to escape that deadening of the childish activities which led Jowett to call education 'the grave of the mind.'

"Were the matter not so serious it would be ludicrous, when we reflect how all this time and effort fail to reach the end to which they are specially consecrated. It is a common saying among intelligent educators that they can go into a

school-room and select the children who picked up reading at home: they read so much more naturally and intelligently. The stilted, mechanical, droning, and sing-song ways of reading which prevail in many of our schools are simply the reflex of the lack of motive. Reading is made an isolated accomplishment. There are no aims in the child's mind which he feels he can serve by reading; there is no mental hunger to be satisfied; there are no conscious problems with reference to which he uses books. The book is a reading-lesson. He learns to read not for the sake of what he reads, but for the mere sake of reading. When the bare process of reading is thus made an end in itself, it is a psychological impossibility for reading to be other than lifeless. . . .

"Methods for learning to read come and go across the educational arena, like the march of supernumeraries upon the stage. Each is heralded as the final solution of the problem of learning to read; but each in turn gives way to some later discovery. The simple fact is, that they all lack the essential of any well-grounded method, namely, relevancy to the child's mental needs. No scheme for learning to read can supply this want. Only a new motive—putting the child into a vital relation to the materials to be read—can be of service here. It is evident that this condition cannot be met, unless learning to read be postponed to a period when the child's intellectual appetite is more consciously active, and when he is mature enough to deal more rapidly and effectively with the formal and mechanical difficulties. (John Dewey, *The Primary Education Fetish,* The Forum, May, 1898, pp. 315–323.*)

READING

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*By permission The Forum Publishing Co. Copyright 1898.

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JUDD, C. H.—*Reading: Its Nature and Development,* Supplementary Educational Monographs, Vol. II, No. 4, University of Chicago Press.

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Writing.—Systems of teaching writing, Spencerian, vertical, Palmer and so on, come and go, and instead of being a solution of the problem seem only to add to its complexity. Two fundamental points to be considered with regard to writing are the child's need of it and his physical fitness to undertake it. Writing does not need to be taught until the child begins to feel a desire to express himself by written symbols rather than by some other means. Spelling and writing go together and should both be incidental until a later stage than that of learning to read. Writing involves a complex movement necessitating the coördination and control of a number of muscles of the arm, the hand and the fingers. It must be evident that the complexity of the movements involved and the close attention required make it unsuitable to the early stage of child development. In experiments carried on by Bryan and Gilbert, it was found that the motor ability of the arm and hand reached maturity about the period of adolescence, and that about the age of nine or ten the finger movements acquired a high percentage of ability. It seems probable, therefore, that the child is not physiologically fitted to do much writing or a finished type of writing before that time. When beginning writing the child, of necessity, writes haltingly, laboriously, and irregularly because of the complexity of the coördinations necessary to producing writing. Consequently little writing should be required of a child at first and that little accomplished with as little consciousness as

possible. Early writing should be large, exercising the large muscles; gradually it may be made smaller and more attention paid to details. From the beginning it should be upon content that has meaning for the child.

Since writing depends upon habit-formation, a careful consideration of the best form of practice is important. Practice for practice' sake soon degenerates into carelessness and for this reason copy-books have been discarded. The most effective practice is gained through expressing one's thought. Copy-books may profitably be used as reference books to be consulted as a corrective of form. The child should observe the correct form of a troublesome letter and practice it, by continuous comparisons with the model he is able to correct his errors.

Handwriting scales have been extensively used recently as a means of improving form. They are valuable in supplying an incentive to improvement. It is possible with children beginning writing to evolve a scale from their own experience by preserving specimens of writing done at regular intervals. Each child can then observe his own improvement. One of the most effective aids to improvement lies in directing the child's attention to the sources of his own failure and successes and thus making him an intelligent critic of his own work.

READING

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THORNDIKE, E. L.—*Handwriting*, Teachers College Record, March, 1910.

Spelling.—It has been found by investigation that the time actually devoted to spelling in schools, as given on daily school programs, ranges from ten minutes to an hour, the latter being more than one-fifth of the available time for instruction; in addition to this, lessons are almost invariably assigned for home-work, and a large amount of incidental work is always done. Yet, notwithstanding this expend-

iture of effort, there is abundant evidence to show that pupils in the upper classes of the secondary school are often unable to write correctly a large number of words occurring in ordinary discourse. It has been found that in schools giving a great deal of time to the subject the results are no better than in those devoting only a small amount. It seems evident that the causes of success and failure must be sought in (1) the selection of material for spelling lessons, and (2) the method of dealing with that material.

A brief review of the history of spelling will throw some light on both of these points. In the beginning the subject of spelling was closely associated with reading—a relation somewhat difficult for the modern teacher to understand, since spelling is a technical equipment made necessary by the demands of written expression, and a child's writing vocabulary is obviously different from his reading vocabulary. A little later, spelling was differentiated from the subject of reading, largely because of the appearance of spelling-books, which gave it a more or less independent existence as a formal subject. Spelling-books imposed adult standards in the selection of words, and disregarded the child's need of them. The grading of words was mechanical rather than psychological, the difficulty of a word being largely measured by the number of syllables it contained. The fallacy of grading words on mere length is obvious. An irregular word of three syllables may be more difficult than a regular word of five. Moreover, a child wishing to spell an irregular word useful to him, will learn it more readily than he would a regular word imposed on him by the spelling book.

Not only was the material of the old-fashioned spelling lesson unsatisfactory, the method of dealing with it was equally so. The ordinary lesson consisted of the writing of twenty unrelated words at the teacher's dictation; these were afterwards corrected according to the oral spelling by the teacher, and a new lesson assigned for the next day without much preparation or anticipation of special difficulties. Correction on the part of the child consisted in writing the misspelled words a specified number of times. Under such

a system the learning of spelling was a matter of individual study; the so-called class lesson was really a daily examination designed to test knowledge. The ineffectiveness of this drill has been frequently demonstrated by the fact that the act of spelling words in connected discourse is one the complexity of which far exceeds that of writing lists of words, and that ability acquired in drill is not always transferable to the exigencies of connected written discourse. That pupils who can pass good spelling examinations frequently write badly spelled compositions and letters is a matter of frequent comment.

Present day methods still suffer much from inheritance. For instance, the ordinary spelling-book still contains some ten or fifteen thousand words, many of them never occurring in the child's writing vocabulary, nor even in the ordinary adult's. Spelling can never be perfect until it is automatic. But we can never secure this automatic spelling until we rid ourselves of the notion that the child should learn to spell all the words that a person might ever be called upon to use. The problem is to teach the children to spell the words which they use in their own free written speech. In an investigation carried on in South Dakota it was found that out of fifteen million words used by a thousand pupils (about one hundred and fifty in each grade above the first) in writing seventy-five thousand themes on subjects of interest to them, the total number of different words was but 4532. It was found further that the words most frequently misspelled occurred almost invariably in the lower class lists, and reappeared in the subsequent lists. Such an investigation points the way to a great simplification of spelling material, and consequently should have a powerful reflex upon the method of teaching the subject. If words generally misspelled are found in the early vocabularies of children we must pay particular attention to the weeding out of these words in the lower grades so that misspellings may not become fixed by the bad habits of many years. If the entire number of words to be taught is greatly reduced, the lesson of fifteen or twenty words a day must be abolished, because such assignments imply more words than

the pupils command. The assignment of three or four words a day would probably be in better proportion. The time released by the reduction of the number of words in the lesson could then be profitably spent in the class study of new words. The primary aim in the spelling lesson is not testing but teaching; not in finding spelling errors, but in preventing them. Much care should be taken in presenting new words, and in safeguarding the child against a wrong first impression. If a lesson is assigned it should be not the mere blocking out of a number of words to be learned, but an exercise in which the teacher uses all her foresight in anticipating the various kinds of trouble the child will meet, focussing attention on special difficulties and suggesting modes of self-instruction.

There are three factors to be taken into consideration in teaching a child to spell any word: the meaning, the pronunciation, the spelling. Tests which have been made show that it is never safe to take any of these three factors for granted. If a child does not know the meaning of a word, he cannot use it, and therefore has no need of spelling it. If he mispronounces it he is apt to misspell it. "Library," "surprise," "February" are classic examples of this type of word. The ultimate spelling test must always be the ability of the pupil to write a word in expressing thought.

The correction of spelling errors should not be left to the child; it should be an inquiry into the cause and should be undertaken in so pedagogical and thorough a manner as to prevent recurrence of the error. The method of copying the correct spelling of a word a certain number of times has been found to be futile and therefore wasteful. The child writes a word ten or twenty times mechanically, taking little note of peculiarities and not associating the form with the other elements; meaning, pronunciation, etc. Relearning an old word correctly, after incorrect habits have been formed, is vastly different from learning new words about which the child has no misconceptions. The child's whole attention is on copying, mastering a written form outside of its normal setting. The result is that often the child who

has written a word correctly ten or twenty times will misspell it in a composition. The teacher should establish a new neural path beginning with meaning and leading through pronunciation to correct written form, and exercise it so well that it gradually becomes the path of least resistance.

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Arithmetic.—Mathematics has played an imposing rôle in school work as the main prop supporting the belief in formal discipline. Beginning almost immediately after entrance into school, children are drilled in the fundamental operations, in the tables, and so on through the more and more complex mathematical processes. A through-going application of the doctrine of formal discipline drills children in all the essential mathematical processes in the belief that the ability thus trained will function in any specific situation that may afterwards arise. Experimental psychology has done much to shake our belief in the transfer of training, and certainly the bad record made by many school children when called upon to apply formally-gained mathematical knowledge to the exigencies of daily life would seem to uphold the psychologists. The possibilities of mathematics as a social study have been little appreciated. Mathematics fails of its purpose unless it is regarded as a social tool. When it is divorced from its connection with social life it becomes

unduly abstract, a matter of technical relations and formulæ without end or use.

Mathematics represents an absolutely indispensable means of measuring and thus comparing the facts of life, a method of standardizing the exchange value of goods. This point of view, if applied in the school-room, means a complete reconsideration of the content and method of teaching arithmetic. As to content, children should have experience in solving the types of problems that are found important and frequent in business and social relations. This involves an analysis of current social life to see what mathematical factors in it are of general importance. Although arithmetical knowledge is concerned in a great many of the affairs of life, its primary use is in economic relationships. It has to do with solving the problem of maintenance. In family life it is related to questions of food, clothing, shelter, in the relationship of expenses to income and savings; in industrial life it has to do with questions of the cost of production, of transportation and of distribution in relation to the price to be paid by the consumer. This essential economic significance of arithmetic is almost entirely neglected when it is regarded merely as a disciplinary subject. The study of food, clothing, shelter, now becoming so popular in elementary schools, should consist not only in the study of the sources, the methods of manufacture and so on, but in a knowledge of what they mean to a family in the purchasing power of a family's income. This is the sort of knowledge that is needed by children if family life in the future is to be regulated by intelligently appreciated economic principles, and if the future workers of the world are to have an understanding of the economic basis upon which the world order rests.

Arithmetic, then, enters into the curriculum not as formal subject matter; it enters whenever it can explain or vivify a situation. There are numerous connections between the experience of children and business. The domestic plays of young children make possible dramatizations of buying and selling into which more and more of

real value can be naturally and gradually introduced. A knowledge of measures begun perhaps in the carpenter shop, in connection with the bench work, will necessarily be extended to a knowledge of the household weights and measures. These will develop naturally into the keeping of household accounts, determining the cost of food, clothing, the up-keep of the home, the making of budgets, calculating of the amount saved in buying in quantities, consideration of the big questions of economy in purchasing, the value of saving, the function of banks as a factor in modern life, and so on through other institutions created by society for the satisfaction of economic needs. The whole stability of social life will then be seen to depend upon adequate solutions to these problems. Arithmetic work instead of being a mere rehearsing of number combinations will become a very fundamental part of daily life. This does not mean that drill will be neglected; knowledge of number combinations is important; it is a means essential to the attainment of our ends. Drill will fall into its rightful place. It will follow rather than precede problems, and it will be not the development of a general ability, but definitely adjusted to meeting the difficulty at hand.

This view necessarily affects the use of arithmetic text-books. In text-books, mathematical principles are worked out, and problems that illustrate the principles are selected and classified. It follows, therefore, that according to the view put forth here, the text-book must fall into a secondary place. The original source of arithmetic problems is some social situation under consideration by the class; the text-book may be used to furnish problems that illustrate similar situations requiring similar solutions. It is better still to utilize the home and outside experience of the children to furnish data for further problems. They may consult store-keepers, read advertisements of sales, bring in printed price-lists, bills from their home accounts, etc. The more real data the better.

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THE ORGANIZATION OF SUBJECT MATTER

The formal studies are the results of racial experience. Just as the race formulated its generalizations through wider and wider experience, so the child must be led through experience to general conclusions, from particulars to universals. It follows, therefore, that the curriculum cannot be a fixed, classified series of studies formulated in advance and imposed upon the child in a formal way. Modern psychology has made clear that the value of special subjects apart from use is a pedagogical myth. It is the child and not subject-matter which determines the organization of the course of study. Out of the natural processes of experience properly guided, the curriculum as classified subject-matter should extend over a long period, and he achieved gradually and naturally. "Abandon the notion of subject-matter as something fixed and ready-made in itself, outside the child's experience; cease thinking of the child's experience as something hard and fast; see it as something fluent, embryonic, vital, and we realize that the child and the curriculum are simply two limits that define a single process. . . . It is continuous reconstruction of experience, moving from the child's present experience out into that represented

by the organized bodies of truth that we call studies. On the face of it, the various studies, arithmetic, geography, language, botany, etc., are themselves experience—they are that of the race. They embody the cumulative outcome of the efforts, the strivings, and successes of the human race generation after generation. They present this, not as a mere accumulation, not as a miscellaneous heap of separate bits of experience, but in some organized and systematized way—that is, as reflectively formulated. Hence, the facts and truths that enter into the child's present experience, and those contained in the subject-matter of studies, are initial and final terms of one reality.'' (John Dewey, *The Child and the Curriculum*, pp. 16-17.*) According to this view the curriculum is the great moving force, the effective instrument by which two variables, the child and the environment, are mutually interrelated. By means of the curriculum, childish experience is gradually released from the narrow confines of the *here* and the *now* into universal conceptions of time and space. ''The world of experience is one, not many. . . . The proper educator is reality, not conventionalized abstractions from reality. Hence the demand . . . that schooling, particularly in its earlier stages, shall be changed from an afflictive imposition upon life to a rationally concentrated accomplishment of a portion of life itself. . . . This reality as a connected whole, related to the pupil, is always the natural and rational means of education. A sequence of studies, in the sense that the pupil is to be enjoined from intelligent contact with portions of reality until other portions have had their turn, is a monstrous perversion of the conditions of education. All reality, the whole plexus of social life, is continually confronting the pupil. No 'subject' abstracted from this actual whole is veracious to the pupil unless he is permitted to see it as part of the whole. It is a misconstruction of reality to think and accordingly to act as though one kind of knowledge belongs to one age and another to another.

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The whole vast mystery of life, in all its processes and conditions, confronts the child as really as it does the sage. It is the business of the educator to help the child interpret the part by the whole. Education from the beginning should be an initiation into science, language, philosophy, art, and political action in the largest sense. When we shall have adopted a thoroughly rational pedagogy, the child will begin to learn everything the moment he begins to learn anything." (Albion Small, *The Demands of Sociology upon Pedagogy,* pp. 21-25.*)

The child with needs to be met is the starting point of instruction; the subject matter is whatever meets those needs. The curriculum should be a plastic flexible instrument capable of being employed by the teacher to meet specific needs as they arise. Information whether it be geographical, historic, scientific or what not should be sought as it is needed. As a result of such procedure we should have gradually built up an organically related body of subject matter following the development of experience. "When the child lives in varied but concrete and active relationship to this common world, his studies are naturally unified. It will no longer be a problem to correlate studies. The teacher will not have to resort to all sorts of devices to weave a little arithmetic into the history lesson, and the like. Relate the school to life, and all studies are of necessity correlated." (John Dewey, *The School and Society,* p. 80.)

The criterion by which the curriculum must be judged is the psychological one—"what is that study, considered as a form of living immediate, personal experience? What is the interest in that experience? What is the motive or stimulus to it? How does it act and react with reference to other forms of experience? How does it gradually differentiate itself from the others? And how does it function so as to give them additional definiteness and richness of meaning? . . .

"Until we ask such questions the consideration of the school curriculum is arbitrary and partial, because we have

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not the ultimate criterion for decision before us. The problem is not simply what facts a child is capable of grasping or what facts can be made interesting to him, but what experience does he himself have in a given direction. The subject must be differentiated out of that experience in accordance with its own laws. Unless we know what these laws are, what are the intrinsic stimuli, modes of operation and functions of a certain form of experience, we are practically helpless in dealing with it. We may follow routine, or we may follow abstract logical consideration, but we have no decisive educational criterion. It is the problem of psychology to answer these questions; and when we get them answered, we shall know how to clarify, build up, and put in order the content of experience, so that in time it will grow to include the systematic body of facts which the adult's consciousness already possesses." (John Dewey, *Psychological Aspect of the Curriculum.* Educational Review, April, 1897, pp. 362-363.*)

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The Study of Social Life

It may seem as if the point of view of curriculum organization suggested might easily lead to haphazard

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progress and under certain circumstances to chaos. If we are to give up the neatly arranged course of study, so much ground covered each year, examined and reviewed upon, if we are instead to follow as closely as possible the leadings of childish interests and capacities, it is necessary to have some principles of organization in order to see where those interests are leading and thus direct them. If we refuse to see true scientific sequence of subject-matter in the arbitrary arrangement dictated by the teacher or the demands of the daily program, have we any other organization to suggest?

We have chosen as our definition of education "the continuous reconstruction of experience with the purpose of widening and deepening its social content." We must find within this definition our principles of organization of subject-matter. Experience has only three possible phases: present, past, and future. The present is the outcome of the past, and the basis of the future. These three phases should be the organization conceptions underlying the reconstruction of experience by means of the curriculum. The aim is to give children:

(I) An ever widening knowledge of their present social environment, radiating out from the home, through the neighborhood into national and international relationships.

(II) Explanations of present situations by reference to their evolution.

(III) The use of the knowledge thus gained for assessing present conditions and formulating hypotheses for social reconstruction.

This does not mean that this classification is to be used in any rigid way; it means merely that the teacher has the conception of the way experience expands and deepens and that she should constantly lead the various experiences of her pupils out in these directions.

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Community Study.—The function of information is gradually to extend children's experience by constantly making clear the relationship between things known and personally experienced and things at a distance. Children's ability to construct correct pictures of things at a distance is based upon ideas gained in a vivid and real form in their own home neighborhood. Hence the necessity of utilizing to the fullest extent every phase of the home neighborhood to build up the conception of a type of social life resulting from certain cultural and natural conditions. "The social *desideratum* is that the developing member of society shall become analytically and synthetically intelligent about the society to which he belongs. The precision of his social intelligence in general depends upon the exactness of his knowledge of details in the life which he most intimately shares. Observation of the structure, functions, and forces of life in one's own community is the normal beginning of true and large social intelligence and action." (Albion Small, *The Demands of Sociology upon Pedagogy,* pp. 28-29.) The source material of social life lies all about us. "The puzzling world is the student's own world and he may as well begin to resolve the puzzle in his own street or school district." (Small and Vincent, *Introduction to the Study of Society,* p. 16.)

The initial point of departure should be the study of those particular phases of group life which fall well within the circle of the child's personal affairs. One of the first and most fundamental relationships that need to

be made explicit in the child's experience are those within the home and the relationship between the family and the neighborhood. This is important for a number of reasons. The family group is the first social group with which the child has definitely established social relations, and in connection with which all his knowledge must function socially in his every day experiences. The child when he first comes to school knows related things only in connection with home life. The family group of each child is the focussing point of his relations to the world environment. It must always remain a channel through which social experience comes to him. Moreover it represents in little all the important elements of social relationships. It is through family life that the child is initiated by experience into the social life of his time. It is clear that if the aim of instruction is to socialize a child's experience, its first task is to develop an understanding of the social relationships illustrated in family life. School life then grows naturally out of home life.

Social considerations also make this an important task for education. The family is the permanent social unit; it is the means by which social life is advanced. The life of society circles around the family, supplying its needs, broadening its outlook so that it is not only physically nourished but psychically enriched and may give back to society a better solution of the social problem. A more enlightened understanding of the values bound up in family life is certainly desirable from a social point of view. By beginning with family relationships and radiating out into wider and wider circles of relationships, the school will give socialized meaning to children's experiences, constantly direct their attention to new aspects, and lead the way to new experiences, which will then have significance because their relationship to the old is realized.

The home plays spontaneously engaged in by children in the play period, offer unending opportunities for developing through discussions an understanding of the social relationships involved. If organized around this axis,

matters of food, clothing, and shelter are seen to be integrally related to vital experience. The family has the responsibility of fulfilling certain functions if social life is to be sustained. The important question is: what does the family need to keep itself going as a social organization? It must possess itself of material goods to satisfy its needs. Hence one of the first undertakings of the family is providing a shelter and making such additions to it as will provide not only the necessities of life, but those that will make possible a desirable form of social life. It is essential if any fixed and orderly relations are to result, for the family to establish permanent relations with the land. Consideration of this matter will involve showing how the environmental factor enters in to modify the satisfaction of human needs. The home is adapted not only to environmental but to economic conditions. In order that the home may be maintained certain activities must be engaged in to support it. Money must be earned not only for present necessities, but enough to provide against future emergencies. The family will then be seen to have a direct relation to the production of wealth. In order that the family may the more adequately satisfy its needs, a certain division of labor and certain forms of coöperation have been worked out in home relations. Individual rights are respected, but there are certain duties, indispensable to social harmony, required of each member of the family. A certain regulatory system has been evolved for maintaining social order.

The home is not, however, an isolated unit complete in itself. Home life connects up with the community at innumerable points. They are inextricably bound together. Each family by virtue of some economic arrangement receives through the channels of transportation the material goods necessary to carry on its life. The direct connection between the home and community may be made by making a study of the needs of the family and the means that have been established in community life for satisfying them. The home forms immediate contacts with a great many persons—the grocer, the milkman, the

carpenter, and so on—who weave a network connecting the home and the community. Each person considered is seen to touch a great many other persons each of whom is rendering some service. For instance the carpenter is able to give all his time to building because the grocer, the tailor and a number of other people provide him with food, clothing and all the other things that he needs. Consideration of these people leads to endless inquiries about the people who do this work: how they live, where they get their products, what they earn, what their problems are, leading further and further into the industrial and social life of the community and exemplifying the principles of division of labor and coöperation.

From their trips into the neighborhood the children will perhaps at first gain a general confused impression of activity as characteristic of social life. The streets are filled with people going in various directions, wagons and trucks are threading the streets, and so on. The child ". . . knows the railroad with its long trains of freight cars which load and unload at the station; the fast express that stops scarcely a moment to let off and take on passengers. If he lives near a large river, the steamers and sailing vessels are familiar objects, and these, he knows, carry goods and passengers like the trains. Maybe there is a canal near his home on which the long, clumsy-looking boats are towed by horses and mules. In the village or town in which he lives there are buildings of many kinds—great factories and mills where things are made and grain is ground into flour, stores where things are sold, homes, and schools and churches. Then there are the farms about the neighborhood with their broad fields of wheat and corn, and their cattle and horses. No matter where he turns he sees *work* of some kind going on. Some of the people are buying goods, others selling them; some work in the mills, others on the farms, some run the boats and trains, others are building houses or quarrying rocks or cutting down the trees and sawing them up into lumber. Everywhere it is work, and the child soon learns that he must work in order to live." (S. Trotter, *The Social Func-*

tion of Geography, National Herbart Society, Fourth Year Book, p. 64.)

To the child it should appear that he is learning about people and what they are doing, but as the study of the community progresses this seemingly chaotic activity should be seen to be dominated by fundamental purposes, and the great majority of men to take definite places in a great social organization. The story of a community is the story of how men coöperate to supply their needs. This concept should be developed not in any case by statements or generalizations, but by constantly drawing the attention of children to the innumerable concrete instances about them that illustrate the principle. The activities carried on by the children in school and their trips into the neighborhood offer constant opportunity for giving insight through discussion into the mechanism of social life. The general plan should be to lay a broad basis in experience by inductive methods, and to make deductions whenever sufficient illustrations have been met to warrant summarizing. For instance, when a sufficient number of people supplying us with food have come to the children's notice, it might be well to make a summary of all the people who supply us with food, and thus show our dependence on others for food. The same procedure could be followed with other topics. Or, after sufficient knowledge has accumulated through experience, it might be well to summarize by considering a meal and seeing all the dependencies involved in it—or in a day's experience from morning till night.

The study of the community should include not only a consideration of the provisions for satisfying man's material needs, but also those for elevating social life. The relationship between social life and its economic basis should be constantly pointed out. Political institutions should be viewed as the means evolved to regulate social life so that it may develop most advantageously. The study of the community as a whole when it has reached that point might be summarized as a community survey. For older children who understand the significance of

maps, the making of a social map of the neighborhood showing the location of stores, factories, parks, railroads, and all the other provisions for supplying community needs, is an impressive way of summarizing the social resources of the neighborhood.

Following is a tabular statement of the typical way in which a community attempts to satisfy its needs. Since a community is such a complicated network, in which many elements overlap, it is difficult to reduce it to any classified form. This classification is not intended to be anything more than a suggestion which may perhaps be helpful in clarifying the idea.

COMMUNITY RESPONSES TO FAMILY NEEDS

Needs		*Responses*
I. Economic (Physical Needs)		
Foods (kinds)	Production	Farming, Dairying, Fishing
	Transformation	Slaughter, Canning Factories, Bakeries, etc.
	Transportation	(See special heading)
	Distribution	Markets, Grocery stores, etc.
Clothing (kinds and accessories)	Preparation	Cooking, Serving
	Production	Cotton-raising, Flax-raising, Silk culture, Sheep and cattle raising
	Transformation	Factories, etc.
	Transportation	(see special heading)
	Distribution	Department stores, etc.
	Making	Dressmakers, Tailors, Milliners, etc.

Needs		*Responses*
Shelter (and furnishings)	Production....	Lumbering, Mining, Quarrying, etc.
	Transformation	Mills, Glass-making, etc.
	Transportation.	(see special heading)
	Supply.....	Builders, Supply stores, Contractors, Architects
Transportation		Streets, Roads, Railroads, Water traffic, Vehicles
Conservation of Wealth.....		Banks, Brokers, etc., Insurance

II. Social (Need for Social Intercourse)

Communication	Post office, Telephone, Telegraph, Wireless, Newspaper, Books, etc.
Education.....	Schools, Colleges, Libraries, etc.
Recreation.....	Clubs, Theatres, Moving Pictures, Art Galleries, Music, Parks
Religion.....	Churches, Charity Organizations
Pathological Phenomena	Insane asylums, Poor houses, etc.

III. Political (The Means of Regulating I and II).

Needs	*Responses*	
Protection and defence of life and property	1. Against fire	Fire department.
	2. Against disease	Garbage; Sewerage; Drainage; Board of Health; Hospitals
	3. Against anti-social persons	Police department; Jails
Government...	Laws; Courts; Lawyers, etc.	

A knowledge of the physical characteristics of the neighborhood, should be developed as they are observed in their effect upon the life of the community. In connection with the occupations carried on in the neighborhood, the children may be led to discover the reason for their location in the physical advantages afforded. Consideration of the absence of certain necessities in the neighborhood and the reason for their absence will make clear the necessity for transportation and commerce. In tracing necessities to their sources and discussing the geographic conditions necessary to their growth and manufacture, we may gradually build up a concept of the influence of nature upon the life of man, and of the interdependence of people not only upon the home neighborhood but upon the whole world.

The complexity of contemporary social life is, however, so great that it is difficult for children to grasp its fundamental significance, so that it is frequently necessary to analyze the situation into simpler elements. By going back into the past and showing how various social arrangements came into existence in response to man's needs, and by tracing their development step by step, their present complex aspect may be explained. It is for this reason that the study of primitive life is of great

importance in throwing light upon the origin of a number of the necessities of our every day life. It may be taken up with great profit in connection with the study of community life. Such a motive indeed presents the only legitimate excuse for undertaking the study, and suggests the type of work to be undertaken. In primitive life we have man of a rather simple type in direct contact with the forces of nature, and face to face with fundamental economic and social problems. It is easy for even young children to grasp the significance of the situation, and to appreciate the ingenuity and inventive genius of man, by which he brings the forces and resources of nature under the control of his purposes, and thus lays the foundation for our own supremacy. By such a study children may lay a broad basis for understanding the economic foundations of their own community life. If undertaken for this purpose the work will take on a more serious aspect than is characteristic of such work in many schools, where the object seems to be nothing more than to interest children in the picturesque and bizarre features of primitive life. It will suggest, too, a substitution of more scientific reading matter for many of the school texts which give a highly diluted if not altogether false idea of the period. Fortunately we have a wealth of anthropological material which enables us to see our customs, usages, and social institutions in early stages of development, to see how they came into being, and what their reflex was in advancing social life. And there are a number of good books written for children based upon authoritative sources. The children should be led to reproduce imaginatively the situation of the people under consideration. They should be made fully acquainted with the conditions under which they lived, and brought face to face with the same problems. They may then try to find solutions to these problems, and by constant comparison between their solutions and those of the people studied, they may gain a vivid realization of the ingenuity of primitive peoples in thinking out solutions to their problems. Step by step they can trace the needs

that called forth certain modes of activity; they can be led to understand how each successive invention lifted man to a higher social plane and enabled him to conquer new forces of nature hitherto undiscovered; they can see the beginnings of those fundamental laws of associated living—division of labor and coöperation in a common cause. Consideration of how men have subjugated nature by learning its secrets, how they have learned to coöoperate with one another for common ends, gives the key to the study of history; it gives some principle of selection among the great mass of material that is now available, indicating what is essential and what is trivial in the mass of facts that have come down to us from the past. "When history is conceived as dynamic, as moving, its economic and industrial aspects are emphasized. These are but technical terms which express the problem with which humanity is unceasingly engaged; how to live, how to master and use nature so as to make it tributary to the enrichment of human life. The great advances in civilization have come through those manifestations of intelligence which have lifted man from his precarious subjection to nature, and revealed to him how he may make its forces coöperate with his own purposes. The social world in which the child now lives is so rich and full that it is not easy to see how much it cost, how much effort and thought lie back of it. Man has a tremendous equipment ready at hand. The child may be led to translate these ready-made resources into fluid terms; he may be led to see man face to face with nature, without inherited capital, without tools, without manufactured materials. And, step by step, he may follow the processes by which man recognized the needs of his situation, thought out the weapons and instruments that enable him to cope with them; and may learn how these new resources opened new horizons of growth and created new problems." (John Dewey, *The School and Society,* pp. 156-157.*) Such

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a method of historical study is valuable in giving the child an insight into what might be called the technique of progress.

Since the object of historical study is not an enumeration of the various external changes that have taken place in the past, as is the case when history is conceived of as chronology, it is not necessary with young children, at least, that historical sequence be observed. Whenever problems arise with reference to the child's natural and social environment which require the use of historical subject-matter for their solution, the subject-matter may be selected from the racial experiences of any age. Whenever a study of past conditions is made, care should be exercised to bring the minds of the children back to the present situation. Constant comparisons between the present and the past will bring out the advance in social conditions brought about by historical changes.

Besides the study of primitive life local history also becomes of great importance in explaining community characteristics. It may be developed by means of trips to places of historic interest in the neighborhood, and by studying real historic documents and relics in museums and other places. Such work is valuable in giving children experience in the methods of real historical inquiry and research, and in doing away with the idea that history is something which resides in books.

These vivid first hand contacts with the industrial, social and political life that touch the child on every hand should furnish a wealth of facts from which rational relationships should be realized in the complex world in which the child finds himself. If the study of the home community has been developed in accordance with the requirements of the dynamic point of view, children will not be left with the idea that the community is a static organization. Through historical study they will come to look upon society as an evolving process dependent upon the interaction of certain forces. The value of the genetic method of studying history is precisely that it contributes to this point of view. The children should see their present community as the outcome

of the interplay of certain social forces in the past. They should be led to see that there are certain conditions and problems which have been created by the growing complexity of social life, and which we have as yet not been successful in solving. In discussions of these problems points of view should be developed as to methods of solving them.

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Our National Life.—The laboratory study of the home community developed through first-hand information represents a type study showing the social elements in a community as responses for the more effective satisfaction of the common needs of the people in it. The information so

gained acts as a body of reference material valuable in understanding places at a distance. By constant comparison of regions further away with the home community, in which likenesses and differences are noted and the reason for them sought, it is possible to develop an understanding of places not in the immediate experience of the children. Certain social facts will be seen to be common to all communities; others will be seen to be characteristic of the peculiar conditions of the place under consideration. By this process we can gradually build up the child's relationship to city, nation, and the world. Among the larger social units to be early considered is our own country, since it is the one with which the child through his own travels and those of his family and friends has probably already first-hand experience, and it is the one with which his later experience will be most intimately concerned and about which it is necessary for him to have more detailed basic knowledge.

When the United States is studied as so much geography, so much history, so much civil government, the knowledge thus gained tends to remain stratified; it is not organized into a unity that gives a conception of national life as an organic whole. National life may be looked upon as a form of social life that is organized into a political unity. It is the result of the interplay of many factors, but they may all, perhaps, be looked upon as the result of the interaction of the following: (1) The People (that is, a people with a certain experience back of them, which has resulted in a certain cultural inheritance and certain cultural ideals), (2) The Territory (that is, the peculiar features of the land inhabited, which offer certain obstacles or advantages to economic and social development). (3) The Form of Government (that is, the type of regulatory control worked out in order to facilitate relations between (1) and (2)). The study of the United States, then, should be the study of the particular form of nationality developed here in this particular territory offering certain national advantages and disadvantages, and of the type of political control worked out as the result of our peculiar national conditions.

The study should broaden out into a wide survey of our industrial and social institutions with accompanying environmental explanations. Care should be taken not to develop the idea that the United States is an isolated unit; on the contrary, it should be seen to be bound at innumerable points to all the other nations of the world by the strong bonds of economic dependence.

Explanation of every point discussed makes constant recourse to history inevitable. Here again precautions should be taken to show the close connection between America and the rest of the world. America was discovered by Europeans in their effort to find a shorter route to India and the riches of the East; it has been built up by successive waves of migration from Europe, and its population is being constantly fed by a steady stream of immigration from all nations. "The early history of our country as usually told is little more than the narrative of the exploits of Columbus, Ponce de Leon, De Soto, Champlain, Marquette, Joilet, La Salle, John Smith, and a host of other men who stand out as discoverers and explorers. . . . The economic and industrial condition of Europe, which was the direct cause of the period of discovery; the fact that America was never sought, but stumbled on; that when found it was not wanted; that much of its exploration was due to persistent efforts to get a way around it, to discover a northwest or a southwest passage to India, are lost sight of in the doings of particular men. . . . The motive for discovery, the effect of discovery upon the geographical ideas of the time, the reasons why the four great maritime powers of Europe came into possession of our country, why the Dutch acquired the Hudson, the Spaniards occupied our Gulf Coast, the English the Atlantic Coast, and the French the Great Lakes and the Mississippi, and the profound and lasting influence this particular arrangement of European settlers had on our later history, these are the things it concerns us to know, rather than the doings of particular men and the Indian wars of particular colonies.

"A knowledge of the industrial and economic condition of Europe and Great Britain again is necessary to a correct

understanding of the period of colonization; what drove the settlers to Jamestown and Quebec, what sort of people they were, what customs, usages, institutions, political ideas they brought and planted in the new world, is all important . . . The steady movement of the English westward from the Atlantic; the spread of the French into the valley of the Mississippi and their occupation of it to the headwaters of the Ohio; the great difference in the manner of occupation by these two peoples, the French building forts and taking military occupation; the English building towns, opening up farms and taking possession by actual settlement, the effect this difference had on the long struggle for possession, are rarely, if ever, presented to the school-boy. . . .

"He should see our country as it was when Washington was first inaugurated, a country vast in extent with its people gathered on a narrow strip along the seaboard and just beginning their march westward; he should see them destitute of manufactures, of machines, of great industries, of easy and rapid means of communication; he should see the arts and sciences in a rudimentary state, and he should see the differences in habits, customs, occupations, which were peculiar to the people of the eastern states, the middle states and the south. The attention of the student should be called to the fact that innumerable trades, occupations, industries, professions, callings that now afford a livelihood to millions of people had then no existence; that articles and conveniences with which he is perfectly familiar and which have come to be looked on as necessities of life were then unknown, and that the lot of every man in every walk of life was far harder than at present. When this condition has been shown and understood, the boy should follow step by step the wonderful progress from what was to what is. He should see our people hurrying westward in three great streams pushing the frontier before them across the Mississippi Valley, the Mississippi River, over the great plains to the Pacific, building cities, founding states, developing the resources of our country. He should see the northern stream engaged in a thousand forms of diversified industry, and the southern stream ignoring com-

merce and manufactures and devoting its energies to growing cotton and tobacco, and he should be made to see how from these two opposite economic conditions grew in time two separate and distinct people, with utterly different ideas, institutions, customs, and purposes in life, and when this has been made clear to him he will understand the Civil War. To present such a history in slices four years thick and labelled with the names of presidents, or as a dry record of Congress and the doings of the political leaders of the hour is to destroy its meaning and render it valueless. To tell a child that Fulton invented the steamboat, Howe the sewing-machine, Morse the telegraph, Hoe the steam printing-press, Bell the telephone, Goodyear vulcanized India-rubber, is idle if the story stops there. The thing to be impressed upon him is that these great inventions and discoveries . . . have bettered the condition of civilized men everywhere, and are contributions to human welfare made by America." (J. B. McMaster, *The Social Function of United States History.* National Herbart Society, Fourth Year Book, pp. 26-30.*)

As American history is frequently taught, the seeds of dislike and distrust of other nations are often sown. The pupil "can proceed through his course of American history with no suspicion of Europe save as a place from which discoverers set sail and colonists departed, and as the abode of men whose evil plans got good Americans into wars, and whose affairs and governments in general are such that the less Americans have to do with them the better. . . . It must be taught for what it is—largely a reflection of European movements and problems . . . which are still affected by every change in the life of Europe, and which correspond to what is going on all over the world because of the operation of world-wide forces. . . . Our own past history appears as a drama between the angels of light and the demons of darkness, between forces of freedom and enslavement, where victory has ever been on the side of the right. Our constitution and institutions generally are the embodi-

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ment of the achieved and final victory of good . . . we do need some way of making intellectually clear that there never was a struggle between pure good and pure evil; and that there is now, as there always has been, a struggle between interests entrenched in law, institutions, and social convention, and the requirements of further enlightenment and emancipation." (John Dewey, *The Schools and Social Preparedness,* The New Republic, May 6, 1916, pp. 15-16.*) An understanding of the real significance of our national history, a realization of how our national ideals have been built up, is essential to a rational solution of present-day problems, and as a background for the better organization of social and economic conditions so that the nation may be better able to do its work in the world. We must have a clear understanding of what Americanism is, or we shall scarcely be successful in our efforts to further it.

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The Study of Other Nations.—Just as the home community is a type for understanding the community elements of any place far away, the national unit becomes a type for the study of other nationalities. The study of social life in other countries has become a part of the curriculum of many elementary schools, beginning quite early with stories of child life in various parts of the world. Too often in selecting these studies the picturesque and bizarre features of other nations are specialized—such as the wooden shoes and windmills of the Dutch, the quaint customs of Japanese home life, and the like. There is great

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danger that the over-emphasis of these features may give a very incorrect impression of the life of foreign peoples. A more rational standard for studying foreign nations would be something inherent in the experience of the children. There are innumerable points of contact between the experience of children and conditions in remote parts of the world which can be made the starting-point of instruction. In the case of children of foreign-born parents, this might be the consideration of the lands from which they came to America; current events furnish constant connections that might be made use of; and the study of the home community and our own country leads constantly to foreign countries in tracing the things we need in our homes to the places where they originated. These points of contact can easily be made use of to extend the experience of the children to a consideration of the types of social life in various parts of the world which are responses to varying environmental and cultural conditions. Constant comparison of points of similarity and difference should lead to a broader and broader comprehension of the bases upon which various forms of social life rest. The study of the industrial connection between various nations ought to give an idea of the whole world inevitably bound together by the ties of economic necessity.

Ideas of present conditions should be strengthened by constant excursions into the past for explanations. A study of the people of various nations and their origin and development, alone leads to comprehension of their various characteristics. Gradually out of such historical study there should develop a realization of the great events that have worked together for the civilization of the world, and of the particular contributions of the great nations of the past. In this way the children may come to understand under what conditions and in what directions we may progress most rapidly. "Society is to-day engaged in a tremendous and unprecedented effort to better itself in manifold ways. . . . The part that each of us can play in forwarding some phase of this reform will depend upon our understanding of existing conditions and opinion, and these

can only be explained, as has been shown, by following more or less carefully the processes that produced them. We must develop historical-mindedness on a far more generous scale than hitherto, for this will add a still deficient element in our intellectual equipment and will promote rational progress as nothing else can do. The present has hitherto been the willing victim of the past; the time has now come when it should turn on the past and exploit it in the interests of advance." (J. H. Robinson, *The New History*, pp. 23–24.)

By a study of national histories, by reading for enjoyment the literature and folk-lore of the peoples studied, by listening to their music, by learning of their customs, laws, religion, and scientific achievements, and their contributions to art—by thus relieving the life of any people and appreciating their problems and their accomplishments, the children will come to have an intelligent regard for that people. They will see the ideals and characteristics of one nation, not as better or worse than ours, but as different—the outcome of a specific set of conditions. They should gain an idea of the value of these characteristics not as forces to separate people, but to unite them, giving a variety to social life that would otherwise be lacking. It is only by such study that a narrow provincial interpretation of patriotism can be made to give way to a bigger, broader conception of it. "In all our thoughts we think in terms of our own social environment. But the activities of the human mind exhibit an infinite variety of form among the peoples of the world. In order to understand these clearly, the student must endeavor to divest himself entirely of opinions and emotions based upon the peculiar social environment into which he is born. He must adapt his own mind, so far as feasible, to that of the people whom he is studying. The more successful he is in freeing himself from the bias based on the group of ideas that constitute the civilization in which he lives, the more successful he will be in interpreting the beliefs and actions of man. He must follow lines of thought that are new to him. He must participate in new emotions, and understand how, under unwonted conditions, both lead to actions. Beliefs, customs, and the response of

the individual to the events of daily life, give us ample opportunity to observe the manifestations of the mind of man under varying conditions." (Franz Boas, *The Mind of Primitive Man,* pp. 97-98.)

Mr. Clarence Kingsley has given in "School and Society" a suggestive account of how this kind of study might be conducted in school: "The class would begin with the study of the Russian people of to-day, their social institutions, their industrial and agricultural organization, their manners and customs, and their national characteristics as revealed in their present-day contributions to the arts and sciences. We would then turn to the historian and ask him to tell us what he can about the events and causes that have made the people what they are to-day. We have here a basis for the selection of significant historical material. We would then turn to the geographer and we would ask him to tell us what he can about the elements in the geographical location that have helped in the making of this people.

Our study of the Russian people would not, however, end here, but instead the really fruitful part would begin at this point, for the class would now be in a position to gain some conception of the possible development of this nation in the family of nations. And then in view of this comprehensive study, they should discuss the relations that should exist between our nation and the Russian people as a nation. . . .

"We should not, however, omit a study of typical backward peoples. I would use the term backward rather than semi-civilized because the term backward is consistent with an ethical attitude toward these peoples; for in our study of them we should lay particular stress upon the attempt to find in them the possibilities that will, if they are properly treated, lead them to make their own distinctive contribution to civilization. . . .

"The danger to be avoided above all others is the tendency to claim that one nation has a sweeping superiority over others. The claim of such superiority among nations as among individuals is a sure cause of irreconcilable

hatred. The cure for this narrow and partisan attitude is to be found in the broad conception that humanity is greater than any one nation.

"The idea should be developed that every nation has, or may have, something of worth to contribute to other nations and to humanity as a whole, and that consequently humanity would be incomplete and one-sided without that contribution. This conception, when thoroughly inculcated, would lead to a national respect of other nations, and would cause us to regard the continued existence and development of all nations as essential to the development of civilization. We cannot expect that a principle so fundamental and comprehensive can be inculcated in the abstract, but through a specific study of many nations, the achievements and possibilities of each of which have been studied in the concrete, this idea may become established.

"This conception of the supplementary value of the dissimilarities of different nations and peoples, together with the ideal of human brotherhood which is generally thought of in terms of essential similarity, should do much to establish genuine internationalism, free from sentimentality, founded on fact, and actually operative in the affairs of nations. . . . While the pupil may not learn very much history as such from this new course, the history he does learn will be organized around problems that are of vital importance to-day, and the teachers will have need of all the knowledge, historical, sociological and geographical, that they possess and can acquire about the people to be studied. . . .

". . . the results which I believe should follow from this study when organized rightly and conducted in the proper spirit: (1) It would tend to reduce friction in international relations, as such friction often results from popular clamor born of a lack of understanding of foreign nations. Our friendly relations with Japan have been jeopardized by just such clamor. (2) It would help us to a truer understanding and appreciation of the foreigners who come to our shores. Our assimilation of immigrants is seriously retarded because so few of us understand them. (3) It would lead us to be

more helpful in our relations with backward peoples, because it would help us to value them on the basis of their latent possibilities rather than on a basis of their small present achievement. This gain would be of special value in dealing with the Negro and the Indian. (4) It would rid us of the false conceit which prevents us, on the one hand, from criticizing ourselves, and, on the other hand, from profiting by the achievements of other nations. For instance, we fail to see ourselves as the South American countries see us, and we have been slow to learn the lessons of cööperative enterprises that we could learn from Denmark. (5) Other nations, recognizing our breadth of spirit and willingness to adopt their achievements, would in turn be all the more ready to adopt the national ideas for which we stand." (C. D. Kingsley, *The Study of Nations: Its Possibilities as a Social Study,* School and Society, Jan. 8, 1916, pp. 38–41.*)

Education has been made to serve the cause of national competition; it can be made to serve the cause of national coöperation. It is especially necessary to the well-being of American social life that American children should be brought up with this ideal, since America is by its very make-up a compound of a great variety of peoples. Unless this attitude is developed by schools, national and social antagonisms will continue to flourish within our own borders, and it will be impossible to work out any adequate means for people of various racial stock to work harmoniously together. Moreover, we must have a more rational estimate of the national integrity and the legitimate aspirations of the various nations, if we are to be in any way prepared to cope with the closer and closer international relations that will develop in the future. We must learn to see beneath the varied expressions of nationality an essential human likeness; we must gain a consciousness of the common aims and interests of mankind. It is only by establishing common bonds of sympathy between nations that we can look forward with any assurance of security to

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a time when "peace and good will toward men" will flourish upon the earth.

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Social Philosophy

The term philosophy, associated as it is in our minds with a particularly advanced and remote type of human being, may seem like a large term to use in connection with the affairs of little children; but it is one of the functions of the dynamic point of view to restore philosophy to experience. According to the new point of view "philosophy is a method, not a remote standard of reference." Social life presents numerous conflicts and apparent inconsistencies, and our experiences stand out as so many isolated and detached fragments unless we connect them through processes of reflection into a philosophic concept. Every action is presumably based upon a philosophic assumption of some kind, however vaguely it may be defined: it involves a summing up of past experience and evaluating it for use in a present situation; it includes some thought of future consequences. There is an innate tendency of the human mind to make such evaluations and syntheses of experience, from the unconscious grcpings of the little child to the purposeful consideration and reflection of the mature person.

The ability to penetrate beneath every-day life, to see relationships, to harmonize apparent conflicts, to view the events of experience as part of a great related scheme should be consciously developed by education. It should aid pupils in organizing information into some significant whole that should act as a working theory of life. This

synthesis is often left to chance, to the planless effort of the maturing pupil to form into some coherent whole the phenomena which his daily life presents. When this is omitted, one of the most serious responsibilities of education is neglected. "If we are willing to conceive education as the process of forming fundamental dispositions, intellectual and emotional, toward nature and fellow-men, philosophy may even be defined *as the general theory of education.* Unless a philosophy is to remain symbolic—or verbal—or a sentimental indulgence for a few, or else mere arbitrary dogma, its auditing of past experience and its program of values must take effect in conduct. . . . On the other side, the business of schooling tends to become a routine empirical affair unless its aims and methods are animated by such a broad and sympathetic survey of its place in contemporary life as it is the business of philosophy to provide." (John Dewey, *Democracy and Education,* pp. 383–384.)

The study of existing social life, beginning with the home community and radiating through the world, supplemented by a knowledge of how it has been built up through the workings of great evolutionary forces, furnishes a wealth of facts from which should emerge a consciousness of the social factors that make or mar social life, and of the great social problems as yet unsolved. The aim of this synthesis is to give children an accurate knowledge of the needs and possibilities of society as a basis for social endeavor.

It is the function of education, then, to restore philosophy to life. The kind of philosophy here meant is itself dynamic, evolving with experience, growing with maturity, and challenged and revised always by the new facts constantly contributed by a developing experience. It is, moreover, not an individualistic nor abstract affair, but a matter of the reflective adjustment of the individual to his social environment. A person's philosophy might be looked upon as the threads that weave the individual into the fabric of the social pattern. In school life this philosophic development can perhaps best be secured through group discussions. By such a method there will gradually be

built up in the group a common body of socially useful points of view, constantly modified to be sure, but acting as a standard of reference by which day to day events and conditions may be judged. An enlightened public opinion can thus be developed within the group as a motive force to control. This is the foundation upon which later more mature judgments may most safely rest.

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Moral Education

The educational aim is not fulfilled even with the development in the minds of its pupils of a conscious social philosphy. Social intelligence must eventuate in fruitful and enlightened social action. A social philosophy which does not affect conduct is sterile, if not positively immoral. If social progress is to be effected, the working philosophy of life must go over into some kind of action that will bring about social improvement. Intellectual appreciation must therefore involve a sensitiveness to obligation, and the development of a disposition and an ability to act with other people for the common good. If we conceive of intelligence as the ability to look ahead, to forecast the result of this or that kind of action, we must attach responsibility for the action determined upon. Increasing ability to direct changes brings with it increasing responsibility to make these changes in accordance with the best good of the group.

This discussion indicates the responsibility of the school in regard to moral training. Moral training has always been regarded as part of the school's business, but it has been looked upon from an entirely formal point of view. It has been supposed to be developed sometimes through a series of lessons in ethics; sometimes courses in story-telling

and "memory gems" have been devised for this purpose; history is sometimes looked to to supply moral training. "Our conceptions of moral education have been too narrow, too formal, and too pathological. We have associated the term ethical with certain special acts which are labeled virtues and are set off from the mass of other acts, and are still more divorced from the habitual images and motives of the children performing them. Moral instruction is thus associated with teaching about these particular virtues, or with instilling certain sentiments in regard to them." (John Dewey, *Moral Principles in Education,* pp. 42–43.)

Much of our educational malpractice in regard to moral training is due, as Professor Dewey points out, to our failure to distinguish between moral ideas and ideas about morality. " 'Moral ideas' are ideas of any sort whatsoever, which take effect in conduct and improve it, make it better than it otherwise would be. Similarly, one may say, immoral ideas are ideas of whatever sort (whether arithmetical or geographical or physiological) which show themselves in making behavior worse than it would otherwise be; and non-moral ideas, one may say, are such ideas and pieces of information as leave conduct uninfluenced for either the better or the worse. Now 'ideas about morality' may be morally indifferent or immoral or moral. There is nothing in the nature of ideas *about* morality, of information *about* honesty or purity or kindness which automatically transmutes such ideas into good character or good conduct. . . .

"The business of the educator—whether parent or teacher—is to see to it that the greatest possible number of ideas acquired by children and youth are acquired in such a vital way that they become *moving* ideas, motive-forces in the guidance of conduct. This demand and this opportunity make the moral purpose universal and dominant in all instruction—whatsoever the topic. Were it not for this possibility, the familiar statement that the ultimate purpose of all education is character-forming would be hypocritical pretense; for as everyone knows, the direct and immediate attention of teachers and pupils must be, for the greater

part of the time, upon intellectual matters." (John Dewey, *Moral Principles in Education,* pp. 1-2.*)

The moral code of the race has been gradually built up out of its experience, as an effective method of forwarding social advancement. Society has learned to approve those actions which tend to the advantage of the community. The moral creed of a particular group is nothing more than the conviction implanted in the minds of its members of the propriety of the manner of life imposed upon them. The standards thus evolved represent public opinion as to what is right and just. The moral is the social; the immoral is the anti-social. Any moral idea found to be socially valuable is retained, those found to be no longer relevant to the social situation are gradually eliminated; those which are universally applicable remain as a permanent part of the moral code.

The foregoing discussions reveal the moral value of activity in education. Since our moral standards are not something remote from experience but engendered by experience itself, moral training cannot be inculcated by giving children a set of maxims; it must be gained through the give and take of social life itself. To provide a child with a set of maxims is to bind him an unthinking slave to the past; to give him the power to realize the moral implications of his own conduct and to evolve a code of ethics for evaluating social experience, from the experience in which he is himself engaging, is to make of him an active agent of civilization. It is for this reason that activities in school are a fundamental necessity in guiding conduct. They give opportunity for situations that bring about moral training through experience itself. *A school régime that encourages the passive absorption of knowledge for its own sake, that isolates pupils into individual units and emphasizes competition, that makes communication among pupils a sin, is training up its pupils in a code of ethics which is not in accordance with what is advocated in life outside of school, and it fails to take advantage of the two great opportunities*

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for moral training of life in a social group—the training in coöperation and social sympathy. The participation of even small children, however, in projects of common interest to them calls for coöperation with all the moral training that it involves. The experience of a child in the company of his fellows is the best moral training he can have. Social disapproval has a quick and direct way of reforming conduct that is worth a dozen homilies or moral lessons. We must interpret moral character more scientifically, more psychologically and adjust our pedagogical action accordingly. Moral character must be regarded as an organic growth, not a series of specific achievements. It is developed through the formation of habits, through experiences. It is a disposition to order one's conduct with reference to the welfare of others. It is only through constantly meeting situations that give opportunity for the exercise of moral ideas that these habits and this attitude can be developed. Discipline from this point of view means not external compulsion, but inner control. Moral preference is exercised only in making a choice. It is only when there is freedom to act, to act wrongly or rightly, that any moral issue is involved. Otherwise the intelligence has no opportunity to discern right from wrong; the disposition to do right has no chance to function positively. We cannot develop in children a sense of responsibility to act rightly when we deny them freedom of choice as to their actions. Ethical conduct is socially regulated activity, and it is evolved only by social experience in an environment freed from external control.

The question of civics is closely related to this matter. Civics teaching as it is to-day conducted is far less effective in its reflex upon social action than it might be. Isolated as it is, just a "subject" crowded into a curriculum with many others, it often fails to impress the child with a sense of reality.

"To isolate the formal relationship of citizenship from the whole system of relations with which it is actually interwoven; to suppose that there is some one particular study or mode of treatment which can make the child a good

citizen; to suppose, in other words, that a good citizen is anything more than a thoroughly efficient and serviceable member of society, one with all his powers of mind and body under control, is a hampering superstition which it is hoped may soon disappear from educational discussion." (John Dewey, *Moral Principles in Education,* p. 9.)

When the school is organized as a social community in which is being built up a body of facts as a basis for social action, when desirable attitudes and dispositions are being developed with regard to social matters, when this social philosophy has continual opportunity to function in situations engendered by the school experience, all the resources of the school are being utilized for realizing the social mission of education. The school cannot be a preparation for social life unless it reproduces within itself the conditions of social life. *Education progressing in a school organized as a social laboratory is not merely a preparation for citizenship, it is an apprenticeship in citizenship.* A conception of morality built up as the outgrowth of such experience will not be merely an abstraction residing in books or consisting of a collection of precepts; it will be a living thing pulsing through the very heart of social action.

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The Function of the Various Subjects of Study in Expanding Experience

The foregoing discussions of the development of a course of study based upon and controlled at every point by psychological and social considerations, have involved all the subjects of study, and an effort has been made to show how they may enter functionally into the educational situation. It is necessary, however, for the teacher to have a

very clear conception of the educational significance of each subject, and of their relation to one another, in order that these subjects may become in her hands a free and flexible instrument to be used as needed. It may be well, therefore, to include here a brief summary of the specific contributions made by the various subjects in expanding experience. Placing ourselves at the standpoint of the developing child, we may roughly classify subject-matter under three headings: (1) Active pursuits, (2) Subjects which give social background for these pursuits, (3) The tool subjects.

(1) *Active Pursuits.*—If education is to proceed in accordance with the demands of child biology and psychology it follows that the central core of the curriculum must be those studies which may be looked upon not so much as studies as active pursuits, or the natural modes by which learning takes place. The child is essentially active, and the fundamental task of instruction is to lay hold of the natural motor tendencies of childhood, and direct them in such a way that they acquire more and more of educational value. Beginning with those natural impulses of the child to construct, to investigate and experiment, to express himself in various art forms, to communicate with his fellows, noted under play activities, it is possible to have him reproduce in play or work form, those pursuits by means of which the work of the world is carried on.

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Work in the constructive arts brings with it a consideration of the function of science in the curriculum. If progress in constructive activities is not to remain the mere acquisition of modes of skill, these activities must be constantly illuminated by an insight into the scientific principles upon which they are built. The constant opportunity afforded by constructive activities for exercise in the

methods of scientific discovery and research, raises these occupations above the plane of training and makes them truly educative. From the point of view of method, science, leading as it does from mere manual dexterity to intellectual inquiries into the nature of activities engaged in, might be looked upon as the connecting link between active pursuits and the theoretical subjects noted in the second group. From the point of view of content, science, revealing as it does the scientific principles upon which all the inventions and achievements of the modern social world depend, gives important clues to the understanding of the complex social life in which the child finds himself.

(2) *Subjects Giving Social Background for Active Pursuits.*—Since our educational aim is to develop the child's understanding of the intricacies of the social life of which he must gradually become a part, subjects of instruction will take the nature of developing a sense of the social significance of the occupations upon which the child is actively engaged. Its mode of development will necessarily depend upon the development of activities within the school.

The connection between the child's own activities and these subjects may possibly be made by means of excursions into the neighborhood to see various activities as they are carried on to-day. From these trips the child should gain the concept of man's achievements as responses to his environment in his efforts to satisfy his needs. From this first hand study of the physical features of the home neighborhood in connection with the activities carried on there, he should gradually come to have an understanding of the part which the various forms of the configuration of the earth play in relation to activity. He should see lakes and rivers, mountains and plains as resources or obstacles to human progress. In this way there will be gradually built up a body of facts and principles about the physical environment in which we live and in connection with which many phases of social life have their explanation. "The overcoming of natural obstacles by man, the planting of the wilderness, the subjugation of natural conditions to his daily needs, the advantage taken

by man of every possible means to effect his social development—these are the themes that must be dwelt upon. Nor is it necessary to compass every part of the known earth in order to accomplish the purpose of the study. The study of 'types' in each great social and geographical unit, thoroughly pursued and rightly appreciated is worth infinitely more than the effort to gain widespread acquaintance with facts that must necessarily fade in large part from the mind. . . .

"The underlying principles of the geographic-social environment, wherever viewed, present three phases of conditions of activity—*production, transportation, and consumption.* Under the first of these—*production*—will fall the consideration of the agricultural and mineral resources of a region as dependent upon topography, climate, and geological formation of land. The second—*transportation*—must have as its subordinate topics the topographical features, such as navigable rivers and lake chains, river valleys, the cutting of canals, and the building of railroads along the line of least resistance, by taking advantage of the 'lay of the land,' as in river gorges and the passes through mountains, or, in the case of canals, low water-sheds between adjacent basins either of lakes or rivers. With the development of steam as a means of transportation, feats in engineering skill have accomplished marvellous results—tunnelling a mountain range is equivalent to removing the entire barrier, and 'lands intersected by a narrow firth' are tied shore to shore by spanned arches or cantilever bridges. The third condition—*consumption*—involves a consideration of the cities as great centers of population dependent upon two factors of social activity—*manufacture* and *disbursement.* . . .

"What results are we to expect from this outlook of geography as a social factor in education? . . . The child's mind develops through healthy interest in the primary facts into an attitude of thought that looks for the causes and effects of things. He grows to see that the central motive of the study is the progress of humanity viewed against a background of geographical conditions.

He is led to understand that it is the coöperative labor of men that accomplishes results. The East must cooperate with the West, the North with the South—each with the other—in order to build up a strong and vital social community. From his own country he will look abroad with the same thought in mind to other countries and other peoples. He will tend more and more to lose that *local prejudice* which is engendered by narrow conditions of life and fostered by narrow methods of teaching. He will become more of an American than a Pennsylvanian, and with a wider experience in the history, literature and language of the race from which he has sprung, more Anglo-Saxon, though not a jot less American. In other words, he becomes more *socially intelligent*, and social intelligence is the lever that lifts mountains. With the social intelligence must come the *social disposition*—the deeper appreciation of himself as a member of society. It may not dawn upon him at once; he may never realize in a concrete way what the study has done for him; but if there be any good in him, he will surely become the stronger man, the better neighbor, the more useful member of the social life in which he lives and moves. His sympathies will widen toward all sorts and conditions of men. He will realize better the significance of that struggle in which he and all his fellows are involved.'' (S. Trotter, *The Social Function of Geography*, National Herbart Society, Fourth Year Book, pp. 66-79.*)

Just as the meaning of social life is clarified for the child when viewed against the background of the natural conditions in which it takes place, so is it further explained by studying it in the process of formation. The present is the product of the past; there is no other explanation of it except the past which produced it. We are what we are for no other reason than as a result of a process of growth; therefore we can understand what we are only by understanding how we came to be what we are. The study of history supplies us with the explanations of how

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things in our social life came to be as they are. According to this view, history instead of being a mere enumeration of what has happened in the past, comes to be the key to the understanding of the present. Knowledge of the past simply as past is of little value except as a literary accomplishment. "If history be regarded as just the record of the past, it is hard to see any ground for claiming that it should play any large rôle in the curriculum of elementary education. The past is the past, and the dead may be safely left to bury its dead. There are too many urgent demands in the present, too many calls over the threshold of the future, to permit the child to become deeply immersed in what is forever gone by. Not so when history is considered as an account of the forces and forms of social life. . . . Whatever history may be for the scientific historian, for the educator it must be an indirect sociology—a study of society which lays bare its process of becoming and its modes of organization. Existing society is both too complex and too close to the child to be studied. He finds no clues into its labyrinth of detail and can mount no eminence whence to get a perspective of arrangement." (John Dewey, *The School and Society,* p. 155.)

This point of view necessarily affects very decidedly the method of studying history. If history is regarded as chronology, we naturally begin at the beginning and trace events in their time sequence; if, however, history is the key to some present situation, the starting point must be an examination of the present situation and the focussing of such historical facts upon it as will serve to explain it. ". . . a study of the social factors and forces as they exist in the world about us must precede any attempt at the explanation of historical development. . . . It is in this study of first-hand materials, in the observation of social activities about us, that we must get our clue to the relation of cause and effect in social and political affairs; and until we have this clue, historical facts are merely so many isolated and unconnected events." (T. N. Carver, *Sociology and Social Progress,* p. 5.)

Not only is the method of organizing historical data in-

fluenced by this point of view; the content selected is also profoundly influenced by it. Formerly history was almost entirely political in character. "Our so-called standard works on history deal at length with kings and popes, with courtiers and statesmen, with wars waged for territory or thrones, with laws passed by princes and parliaments. . . . Until recently the main thread selected was political. Almost everything was classified under kings' reigns; and the policy of their governments and the wars in which they became involved were the favorite subjects of discussion. . . . Our most recent manuals venture to leave out some of the traditional facts least appropriate for an elementary review of the past and endeavor to bring their narrative into relation, here and there, with modern needs and demands." (J. H. Robinson, *The New History,* pp. 135-137.)

"The real question is, has not our bias for political history led us to include many trifling details of dynasties and military history which merely confound the reader and take up precious space that should be devoted to certain great issues hitherto neglected? The winning or losing of a bit of territory by a Louis or a Frederick, the laborious piecing together of a puny duchy destined to speedy disintegration upon the downfall of a Caesar Borgia, struggles between rival dynasties, the ambitions of young kings' uncles, the turning of an enemy's flank a thousand years ago,—have not such things been given an unmerited prominence? Man is more than a warrior, a subject, or a princely ruler; the State is by no means his whole interest. . . . He has, through the ages, made voyages, extended commerce, founded cities, established great universities, written books, built glorious cathedrals, painted pictures, and sought out many inventions. The propriety of including these human interests in our historical manuals is being more and more widely recognized, but political history still retains its supreme position and past political events are still looked upon by the public as history *par excellence.*" (J. H. Robinson, *The New History,* pp. 8-9.*)

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If the aim of instruction is to make clear the social life in which children are to play a part and if history is to be one of our chief means of explaining that life, the problem resolves itself into one of selecting from all the mass of historical material available, those phases which will be of greatest service to children in working out the problems of their social lives. Political history has its basis in social and economic conditions of which it is merely the outward manifestation. Emphasis should therefore shift from the study of political history to the study of its economic and social basis, the historic development of the means by which men have subjugated nature and learned to coöperate with one another for the advancement of the common good. The larger conception of history now regards it as the record of all forms of human effort and achievement. It is a record of man's thought in the face of the infinite complexities of life and nature; it shows the insight of man at various stages in his social development, his modes of thought, his range of knowledge and consequently his success or failure in solving his problems.

History and geography are thus seen to be mutually complementary subjects. "While geography emphasizes the physical side and history the social, these are only emphases in a common topic, namely, the associated life of men. For this associated life, with its experiments, its ways and means, its achievements and failures, does not go on in the sky nor yet in a vacuum. It takes place on the earth. This setting of nature does not bear to social activities the relation that the scenery of a theatrical performance bears to a dramatic representation; it enters into the very make-up of the social happenings that form history. Nature is the medium of social occurrences. It furnishes original stimuli; it supplies obstacles and resources. Civilization is the progressive mastery of its varied energies." (John Dewey, *Democracy and Education*, p. 247.) Since the understanding of history depends upon an appreciation of the natural environment as affording resources and presenting obstacles to human advancement, the child who has observed these natural aids and checks

upon human activity is prepared to understand their significance when noted in connection with events remote in time and space.

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(3) *The Tool Subjects.*—These subjects represent the symbols of the intellectual life. Reading and writing are the tools of communication; they make possible shared experiences on a much greater scale than mere oral language could do. Reading is a tool for the acquisition

of the experiences of others, writing is a tool for the expression of experiences. The mathematical processes provide us with measuring rods of various sorts. They are of fundamental importance to experience by making it possible to reduce things to a common denominator of number and thus evaluate them. Measurement and comparison are therefore of fundamental value in understanding relationships. It is through number concepts that we are able to understand the economic structure of society.

In the traditional education where knowledge is an end in itself, instruction in the means by which knowledge is acquired, naturally assumes a place of first importance in any scheme of curriculum-making. If, however, the aim of instruction is to develop in the immature members of society, through experience, an understanding of the social life in which they are to participate, emphasis in the earlier stages naturally falls upon those studies which directly aid in this undertaking. The symbols, affording as they do only indirect and remote modes of experiencing, assume a less important position, becoming, not an end in themselves, but merely a means of expanding experience. Instruction in the symbols will take place only when it becomes necessary to expand the child's understanding beyond what is possible from direct personal experience. Although this point of view may seem to relegate the three R's to a place of secondary importance, in reality they gain greatly in significance, since reading, writing, and number work instead of being so many isolated studies have a highly functional value, organically related to experience.

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Chap. IV. The Psychology of Elementary Education.

The Function of the Teacher

The teacher exists only for the sake of the learner. The foregoing discussions therefore define the task of the teacher. In the conventional school-room the teacher represents vested authority there to compel learning. Her method is considered as something distinct in itself. With a curriculum worked out in all its details, all that the teacher can do is to follow as conscientiously as may be this prescription laid upon her from above. It is small wonder that under such circumstances her method degenerates into mere routine skill, enlivened by such devices as she has found practically useful in inducing learning. "The material, the stuff to be learned, is, from this point of view, inevitably something external, and therefore indifferent. There can be no native and intrinsic tendency of the mind toward it, nor can it have any essential quality which stimulates and calls out the mental powers. No wonder the upholders of this distinction are inclined to question the value of interest in instruction, and to throw all the emphasis upon the dead lift of effort. The externality of the material makes it more or less repulsive to the mind. The pupil, if left to himself, would, upon this assumption, necessarily engage himself upon something else. It requires a sheer effort of will power to carry the mind over from its own intrinsic workings and interests to this outside stuff.

"On the other side, the mental operation being assumed to go on without any intrinsic connection with the material, the question of method is degraded to a very low plane. Of necessity it is concerned simply with the various devices which have been found empirically useful, or which the ingenuity of the individual teacher may invent. There is nothing fundamental or philosophical which may be used as a standard in deciding points in method. It is simply a question of discovering the temporary expedients and tricks which will reduce the natural friction between the mind and the external material. No wonder, once more, that those who hold even unconsciously to

this dualism . . . seek an ally in the doctrine of interest interpreted to mean the amusing, and hold that the actual work of instruction is how to make studies which have no intrinsic interest interesting—how, that is, to clothe them with factitious attraction, so that the mind may swallow the repulsive dose unaware.'' (John Dewey, *The Psychological Aspect of the School Curriculum,* Educational Review, April, 1897, pp. 357-358.*)

Reacting against this point of view many of the new schools revert to the opposite extreme. ''There are those who see no alternative between forcing the child from without, or leaving him entirely alone. Seeing no alternative, some choose one mode, some another. Both fall into the fundamental error. . . . Both fail to see that development is a definite process, having its own law which can be fulfilled only when adequate or normal conditions are provided. . . . If, once more, the 'old education' tended to ignore the dynamic quality, the developing force inherent in the child's present experience, and therefore to assume that direction and control are just matters of arbitrarily putting the child in a given path, and compelling him to walk there, the 'new education' is in danger of taking the idea of development in altogether too formal and empty a way. The child is expected to 'develop' this or that fact or truth out of his own mind. He is told to think things out, or work things out for himself, without being supplied any of the environing conditions which are requisite to start and guide thought. Nothing can be developed from nothing; nothing but the crude can be developed out of the crude—and this is what surely happens when we throw the child back on his achieved self as a finality, and invite him to spin new truths of nature or of conduct out of that. . . . Development does not mean just getting something out of the mind. It is a development of experience and into experience that is really wanted. And this is impossible save as just that educative medium is provided which will enable the powers and interests that

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have been selected as valuable to function. They must operate, and how they operate will depend almost entirely upon the stimuli which surround them, and the material upon which they exercise themselves." (John Dewey, *The Child and the Curriculum*, p. 23.*)

If the aim of the teacher is to convert children into social beings, it is obvious that she must know both child-nature and the nature of the world in which the children live. She must be a sensitive observer of evidences of growth—but she must also have steadily in mind the goal to be reached. The child's present manifestations are to be assessed by their potentialities; they must be interpreted in terms of their social significance. Teachers should, therefore, have a knowledge of the fundamental principles and problems of social life, they should know not only the industrial, social and political organization of the world, but the laws which govern the development of the world and in accordance with which progress takes place. It is only when resting upon a solid foundation of psychology and sociology that the subjects of study, and the educative materials and equipment become so many working resources, so many flexible instruments by means of which the teacher realizes her aims. The limitless amount of material available makes selection necessary. Guided always by the evidences of the child's growing capacity, she arranges an environment supplying conditions that make for the movement of experience into channels of greater social value. She helps children to take apart the vague unity of their experience, to see further and deeper into the relationships implicit in it, at the same time she aims developing such techniques and skills in the children that they will become more and more independent of her.

Recently much attention has been given in educational circles to the consideration of projects as a method of organizing the curriculum. As a means of transferring teachers' attention from the passive to the active aspect

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of education, and as indicating a practical tool by means of which school work may be motivated, the project method is valuable. There is danger, however, in the use of any particular terminology as a description of method. It too easily provides a handle by which method may be lifted out of the vital relationships which give it significance, and considered artificially as something by and for itself. *The great educational lesson to be learned from modern psychology is that there is no special magic residing in method as method by means of which the progress of an out-reaching experience may be effected.* If, however, the term project is employed by teachers as a convenient way of designating a concrete unit of "whole-hearted purposeful activity in a social situation," it may fulfil a useful purpose in educational nomenclature. By its use the indefinite continuity of children's activity may be broken into parts, the relation of the one part to the next can the more easily be perceived, and thus the process of experience the more readily noted and progress measured. It thus gives a ready means of guiding activity into more and more purposeful channels. Another justification of the project method lies in the fact that it gives opportunity for developing within the school situations that engage the pupils' mental powers in the way in which they are implied in life outside of school. Every project to be educationally worth-while should include thought-provoking problems that evolve in a sequence, each one growing out of the preceding, and dependent upon it for its successful solution. In this way experience may be led out naturally to the consideration of highly abstract problems. From such experience mental training of the best sort results because the mind is required to keep the desired end constantly in view, and to regulate intermediary processes with reference to it, to judge the quality of thinking by the results it brings, and to discard irrelevant suggestions. Habits, skills, or special techniques are being developed in the way they need to operate. Altogether the project, properly managed, gives great opportunity

for personal reflection and experimentation, which is the essence of the scientific method of thinking.

It is only when projects are regarded in this way that they are educationally valuable. Considered as method the teacher has no method. Her method is simply her intelligence functioning at its highest capacity. "Educational method to be of worth should be scientific method applied to the art of teaching. The method of the teacher is simply an attitude of mind like that of the scientist. There are two elements involved, the learning mind, and the subject-matter or environment. To have an intimate acquaintance with each, to appreciate the expectant longing of mind, to interpret its responses to stimuli, to form valid conceptions of the activity and assimilating power of each child in the environment made by the subject, is to have a method in teaching which covers the entire range of that great art. It is to have the method of science applied to education. This means that the teacher should have *a* method applicable to every subject, in every division of the school beginning with the kindergarten and extending through the graduate school. A distinct method for every subject is not necessary any more than a special scientific method for each branch of science would be necessary. Whatever be the subject one is teaching the aim is identical with that of all other subjects taught: to determine how mind is working with the material in its environment, what nourishment it is selecting and assimilating." (E. F. Young, *Scientific Method in Education,* p. 147.*)

This conception of method elevates it to the high place which it deserves. It demands of a teacher all of initiative, all of resource, all of the scientific yet sympathetic insight into the lives of growing children which she can command. Since the curriculum is not a fixed thing but a developing situation dependent upon the factors involved in it—the particular group of children, their particular environment, and the social subject-matter

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that will adjust the two—upon the teacher devolves the entire responsibility for the success of the work. She may receive suggestion and help from other people and from books, but it is through the medium of her intelligence alone that any of this can become operative. It is only when teachers become imbued with a deep sense of the social significance of their calling that teaching can hope to fulfil its high office: "the most perfect union of science and art conceivable in human experience."

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Measuring Progress.—The carrying out of this plan will necessarily have a great effect upon the daily program. It will no longer be possible to have set tasks and lessons following each other at half-hour intervals. We all remember the story of the superintendent who proudly claimed that he could tell precisely what every child in the city was doing at a given moment. The requirements of child growth do not demand such assiduous attention to the clock. The daily program should be a flexible plan which allows time for essential activities, for discussion,

and for study and research. There should be time allowed for plays, games, the art activities and so on.

Since the emphasis is upon activities and the free and full development of experience, it will be quite necessary for the teacher to keep a diary of daily events, for reference. This should be an effective aid for seeing the trend of activity and suggesting the next step in its development. Since the new point of view has not yet fully taken hold of school practice, we are as yet lacking in the technique necessary for quick and effective record-keeping. It will no doubt be possible at some later time to work out forms for record-keeping which will allow for all individual variations which this plan demands, but which will render less arduous the work of keeping track of the development of experience. Transfer sheets in which experiences are classified in relation to their bearing upon the various subjects of study would be valuable for recording progress in the curriculum.

It will be necessary, also, to evolve some method of testing the results of this kind of education and some adequate method of measuring progress. The value of examinations, which of course are unsuited to a plan of education not based upon the pure knowledge aim, has been very seriously questioned even in conventional school work. It has been found by experimental data that since a teacher's judgment is necessarily a personal thing and even variable with one person according to physical state, examination marks are not an index of progress. Conscientious teachers who have marked examination papers at two different times, have found a wide variation in the marks they have given for the same paper; while the same paper, submitted to several teachers, has shown a correspondingly wide range of marks. There are numerous other defects of examinations, such as the loose evaluation of the various questions involved, the failure of the marks received to indicate where failures or difficulties lie, and so on. The tendency in educational work now is to substitute tests of a more scientific character for examinations. These tests as yet, however, are more

a matter of promise than of actual achievement. Some of them are applicable to an experimentally developed course of study, but others are not, since they assume a type of experience that any particular group of children may not have had. It is possible, however, to develop within any school a series of tests and scales which are based in method upon the standardized tests, but which are adapted to the particular set of experiences that the children in the school have had. It is particularly valuable for children to develop their own scales, as has been advocated in the case of the drill subjects. Graphs used in arithmetical and other situations are of course important scales; if a record is kept for a length of time of the words needed in spelling by children having typical experiences, a spelling scale can be developed; specimen papers showing the best handwriting of each pupil can be filed, and they become a norm for measuring all future results.

It is probably by such methods as these, with the help of the intelligence tests, that we can at present best solve the question of tests, awaiting the results of our own experimentation as contributions to a more scientific evaluation of children's progress. Such results, if carefully recorded, might presumably reveal something quite different from the results obtainable under present school conditions. It seems likely that we have not yet tapped the well-springs of childhood's possibilities at their deepest level. The same thing holds true of the essential facts of knowledge that should be expected as the outcome of a well-rounded and well-ordered school experience. Although it is undoubtedly important to have a body of minimum essentials, these too, to be valuable, must be arrived at experimentally.

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Courtis, S. A.—*Bulletin No. I* Courtis Standard Tests, Detroit, Michigan.

Equipment and Arrangements.—If the principles enunciated in the foregoing discussions are to be practically carried out by schools it follows that there must be a radical change in their appearance and arrangements. The conditions in the conventional school-room are such as to prevent the normal functioning of child characteristics. The arrangement of the ordinary school-room is hostile to the existence of real situations arising from experience. Almost everything testifies to the great premium put upon listening, reading, and the reproduction of what is told or read. ". . . if we put before the mind's eye the ordinary school-room, with its rows of ugly desks placed in geometrical order, crowded together so that there shall be as little moving room as possible, desks almost all of the same size, with just space enough to hold books, pencils and paper, and add a table, some chairs, the bare walls, and possibly a few pictures, we can reconstruct the only educational activity that can possibly go on in such a place. It is all made 'for listening'—because simply studying lessons out of a book is only another kind of listening; it marks the dependency of one mind upon another. The attitude of listening means, comparatively speaking, passivity, absorption; that there are certain ready-made materials which are there, which have been prepared by the school superintendent, the board, the teacher, and of which the child is to take in as much as possible in the least possible time. There is very little space in the traditional school-room for the child to work. The workshop, the laboratory, the materials, the tools with which the child may construct, create, and actively inquire, and even the requisite

space, have been for the most part lacking. The things that have to do with these processes have not even a definitely recognized place in education.'' (John Dewey, *The School and Society*, pp, 32-33.*) The line of argument seems to have run: we must prepare children for life; since in life outside school they get activity and experience, we must withdraw them from all that, and give them an essentially different training, which they could not get were it not for the school. Hence the school has become isolated from life, and highly abstract and disciplinary in character. We have forgotten that in such a scheme of training for life, we are sacrificing life. The newer psychology assures us that the only preparation for life lies through life, and that we must rely on the development of the processes of growth for later manifestations of mental power.

The present school viewed in the light of what it might become, if only we could rid our minds of cramping tradition, is a dreary, drab place, scarcely reflecting the joyous spontaneity of childhood. In comparison the vision of the school of the future presents a delightful contrast. Since the school is an integral part of the life of the children, the legitimate school environment will be thought of not merely as the school building with its special equipment and its teachers. It will consist also of the home, the neighborhood, in short the general social setting in which the child finds himself. In this larger environment the school will aim to serve a particular function; it will be a middle department of the child's life so to speak; his social laboratory—the one place in the world especially designed to meet his needs, the place to which he may bring his problems, the particular facts he has discovered, where he may exchange information with his fellows, where all the confusing experiences of his daily life may be simplified, explained, the typical and significant phases pointed out, the whole enriched, ideal-

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ized and brought into a more meaningful order, so that it may be carried back again into daily life making it fuller and richer in meaning because of the school process.

All the arrangements within the school should be made in accordance with this conception. Since learning is essentially active the school must be preëminently a place adapted to activity. It will consist of laboratories of various kinds for experimentation and creative expression, such as play-rooms, work-shops, and studios, which will be provided with a generous and carefully thought out assortment of materials—with toys and play-things, with tools and apparatus, and specimens—in short with all sorts of equipment chosen to act as stimuli to initiating and carrying through active experimentation leading, as maturity permits, into the more controlled forms of the arts and the sciences.

Around these arrangements for activities should be clustered whatever provisions are necessary for orienting them by proper information and study. Chief among these provisions would be the school library, where should be gathered and arranged in form for ready-reference, reading-matter, pictures, maps, drawings and related materials, where inquiries into the historic, geographic, scientific and social setting of matters under investigation could be satisfied. It is not to be supposed nor desired that this library be of the ready-made variety; it should be an organic growth, developing in response to school needs, and contributed to by the pupils as they find valuable material in their researches elsewhere. Besides the library there might appropriately be a school museum where there might be in the process of collection representative specimens of the arts and industries of the ages. "In the ideal school there would be something of this sort: first, a complete industrial museum, giving samples of materials in various stages of manufacture, and the implements, from the simplest to the most complex, used in dealing with them; then a collection of photographs and pictures illustrating the landscapes and scenes from which the materials come, their native homes, and their places of manu-

facture. Such a collection would be a vivid and continual lesson in the synthesis of art, science, and industry. There would be also, samples of the more perfect forms of textile work, as Italian, French, Japanese, and Oriental. There would be objects illustrating motives of design and decoration which have entered into production. Literature would contribute its part in its idealized representation of the world-industries, as the Penelope in the *Odyssey* —a classic in literature because the character is an adequate embodiment of a certain industrial phase of social life. So, from Homer down to the present time, there is a continuous procession of related facts which have been translated into terms of art. Music lends its share, from the Scotch song at the wheel to the spinning song of Marguerite, or of Wagner's Senta.'' (John Dewey, *The School and Society*,* pp. 79-80.) Is it too much to hope that with these opportunities for the highest forms of expression, and with these materials to stir the imagination, pupils might respond in new forms of real, creative, inventive thought?

READING

DEWEY, JOHN.—*The School and Society*, University of Chicago Press.
Chap. III. Waste in Education.
DEWEY, JOHN AND EVELYN.—*Schools of To-morrow*, Dutton.
Chap. VIII. The School as a Social Settlement.

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POSTSCRIPT—A CALL TO TEACHERS

The social point of view sends a challenge to every phase of our school procedure. Educational reconstruction is indeed a big undertaking. Is it possible of realization? Or must we stand helpless before the evident failure of our educational system to educate? As we have seen, it is characteristic of the forward reach of the human mind, to hold before itself worthy ends and then set about finding means appropriate to achieving them. Is it too much to expect that the social requirements of education, once they are clearly comprehended and their profound significance realized, can be met?

The great battles "to make the world safe for democracy" remain yet to be won—in the school-room. Let us then refuse longer to bind the new life to the life that is passing. Let us be no longer willing to shackle the experimental spirit of the youth of the world, or to place a ban upon creative and explorative thought. Let us unite to raise up a body of men and women thinkers, not partisans, animated by a great social consciousness, and standing ready to face their problems eager and unafraid. It is only in this way that we can make of education a great liberalizing agent for the release of democratic forces. It will take long, patient, painstaking effort; it will require a body of whole-hearted experimenters, fired by the philosopher's vision, willing to submit every action to rigid scrutiny, and to extract from every failure that bit of good which will lead to its better application in the future. Are we ready for the great experiment?

PART III

BIBLIOGRAPHY OF SOURCES FOR SUBJECT-MATTER

The supplying of subject matter according to the needs of expanding experience requires a new organization of the sources where it may be found. The old text books organized according to adult logical classifications are no longer adequate to supply information so that it will enter functionally into experience. A card catalogue and an assortment of carefully selected books are an indispensable equipment for the teacher who wishes to create a rich, social background for the expanding intelligence of her pupils. For such teachers the following list of books has been compiled. They are classified not as so much geography, history, science, etc., but these subjects are all included under headings by consideration of which they function in experience. The bibliography is not intended to be exhaustive; it may be looked upon rather as a nucleus about which every teacher will add such books as she finds directly suited to her needs, especially those dealing with local matters. Nor can unqualified approval be given to every book included. The list represents a selection from the best books to be had at present. Most of the books included have been personally examined; those which have not have been taken from the A. L. A. lists or other reliable sources. It is difficult to make any sharp distinction between books for children and those for teachers, since children can often use quite advanced texts under guidance. Books which have been definitely written for children are, however, starred.

COMMUNITY STUDY

Food

Production and Distribution

ADAMS, F. U.—*Conquest of the Tropics.* Doubleday, Page. The story of the creative enterprises conducted by the United Fruit Company. Illustrated.

*BASSETT, S. W.—*The Story of Sugar.* Penn Pub. Co.

BENGSTON AND GRIFFITH.—*The Wheat Industry.* Macmillan. Connected treatment of the activities of wheat production through the farm, commercial movements, and manufacturers.

BISHOP AND KELLER.—*Industry and Trade.* Ginn.

*BRADISH, S. P.—*Stories of Country Life.* American Book Co.

BROOKS, E. C.—*The Story of Corn.* Rand McNally. The purpose is to combine the fundamental principles of geography and agriculture and to treat them historically in order that the youth of the country may appreciate the tremendous importance of agriculture in the history of the race.

*BROWNE, E. A.—*Peeps at Industries—Sugar.* Macmillan. Account in simple language. Illustrated.

*BROWNE, E. A.—*Peeps at Industries—Tea.* Macmillan.

*CARPENTER, F. G.—*How the World is Fed.* American Book Co.

*CARPENTER, F. O.—*Foods and Their Uses.* Scribner. Cereals, fruits, vegetables, meats, fish, dairy products, etc.

*CASSON, H. N.—*The Romance of the Reaper.* Doubleday, Page. Account in simple language of the development of the reaping machine.

*CHAMBERLAIN, J. F.—*How We Are Fed.* Macmillan. "The production and preparation for market of many of our principal foods." Story form.

*CHASE AND CLOW.—*Stories of Industry, Vols. I and II,* Educational Pub. Co.

CRISSEY, F.—*The Story of Foods.* Rand McNally. "Deals with the human agencies concerned in the

production of food. We are given a glimpse into the large business enterprises engaged in making it possible for our grocer to furnish us with a wonderful variety of foods gathered from all parts of the world."

*Edgar, W. C.—*The Story of a Grain of Wheat.* Appleton.

*Farmer and Huntington.—*Food Problems.* Ginn. To illustrate the meaning of food waste and what may be accomplished by economy.

*U. S. Food Administration.—*Food Saving and Sharing.* Doubleday, Page.

Frederiksen, J. D.—*The Story of Milk.* Macmillan.

Freeman and Chandler.—*The World's Commercial Products.* Ginn. Authoritative book on the economic and commercial values of the vegetable products of the world. Fully illustrated.

*Bishop and Keller.—*Commercial and Industrial Geography.* Ginn. Leading aspects of commerce and industry under three natural divisions corresponding to three great needs—food, clothing, and shelter.

*Kirby, M. and E.—*Aunt Martha's Corner Cupboard.* Educational Pub. Co. Simple stories of tea, sugar, rice, etc.

*Lane, M. A. L.—*Industries of To-day.* Ginn. Short stories by various writers on codfishing, ranch life, etc.

*Lyde, L. W.—*Man and His Markets.* Macmillan. The chief articles of necessity and the organization of industry to produce and distribute each.

*Morris, C.—*Home Life in All Lands, Vol. I.* Lippincott.

*Rocheleau, W. F.—*Great American Industries, Vol. II.* Flanagan.

*Rocheleau, W. F.— *Geography of Commerce and Industry.* Educational Pub. Co. Conditions relating to industries—dependence of industries upon geographical conditions, relation of man to environment, effect of commerce upon civilization, etc.

Sherman, H. C.—*Food Products.* Macmillan.

Smith, J. R.—*The World's Food Resources.* Holt.

SMITH, J. R.—*Commerce and Industry.* Holt. How man's industries are determined by his environment. The physiographic basis of the industry given in connection with the industrial fact that is being explained.

*STORM, G. E.—*The Water Supply of a Town or City.* Lessons in Community and National Life, Series C. U. S. Bureau of Education, 1918.

SURFACE, G. T.—*The Story of Sugar.* Appleton. Occurrence in nature, early history, manufacture, from refiner to consumer; our future sugar supply.

*TAPPAN, E. M.—*The Farmer and His Friends.* Houghton.

TOOTHAKER, C. R.—*Commercial Raw Materials.* Ginn. Origin, preparation, uses of great variety of materials; good maps.

*TWOMBLY AND DANA.—*The Romance of Labor.* Macmillan. Stories by various authors describing various occupations.

WHITE, W. A.—*The Business of a Wheat Farm.* Scribner's Magazine, November, 1897.

History

*FORMAN, S. E.—*Stories of Useful Inventions.* Century.

*MORRIS, C.—*Home Life in All Lands, Vol. II.* Lippincott.

*REYNOLDS, M. J.—*How Man Conquered Nature.* Macmillan.

*SKEAT, W. W.—*The Past at Our Doors* Macmillan.

(See also titles under Primitive Life.)

Cost

*BALL AND WEST.—*Household Arithmetic.* Lippincott.

*CALFEE, J. E.—*Rural Arithmetic.* Ginn.

*DOOLEY, W. H.—*Vocational Mathematics for Girls.* Heath.

*HOYT AND PEET.—*Everyday Arithmetic.* Houghton. "Problems grouped by situations taken from actual experience so that the child meets numbers

vitally related to his home and school interests." (Preface.)

*Lewis, C. J.—*Farm Business Arithmetic.* Heath. "Large majority of the problems have been taken from actual conditions." (Preface.)

Richards, E. H.—*The Cost of Food,* Wiley.

Rose, M. S.—*Feeding the Family.* Macmillan.

Science

Brownlee, R. B., and others.—*Chemistry of Common Things.* Allyn and Bacon.

Clark, B. M.—*General Science.* American Book Co. Facts about heat, food, light, etc., in every-day applications. Fermentation, bleaching, dyeing, etc.

Conn, H. W.—*Bacteria, Yeasts, and Molds in the Home.* Ginn.

Goodrich, C. L.—*The First Book of Farming.* Doubleday.

Richards and Elliott.—*Chemistry of Cooking and Cleaning.* Whitcomb and Barrows.

Van Buskirk and Smith.—*The Science of Every-day Life.* Houghton.

Hygiene

Conley, E.—*Nutrition and Diet.* American Book Co.

*Denton, M. C.—*An Intelligently Selected Diet, Lessons in Community and National Life, Series B.* U. S. Bureau of Education, 1918.

Jordan, W. H.—*Principles of Human Nutrition.* Macmillan.

*Kinne and Cooley.—*Food and Health.* Macmillan.

McCollum, E. V.—*The Newer Knowledge of Nutrition.* Macmillan.

Richards, E. H.—*Food Materials and Their Adulteration.* Whitcomb and Barrows.

Rose, M. S.—*Feeding the Family.* Macmillan.

*Tuttle, T. D.—*Principles of Public Health.* World Book Co.

Clothing

Production and Distribution

ADAMS, S. A.—*The Department Store.* Scribner's Magazine, January, 1897.

AIKIN, C. G.—*Millinery.* Ronald Press. Straws and braids, making, trimming, principles of color, form, and shape.

*BASSETT, S. W.—*The Story of Silk.* Penn Pub. Co.

*BASSETT, S. W.—*The Story of Wool.* Penn Pub. Co. In story form, illustrated.

BIGWOOD, G.—*Cotton.* Holt. History, production, marketing, and manufacture.

*BISHOP AND KELLER.—*Industry and Trade.* Ginn.

*BROOKS, E. C.—*The Story of Cotton.* Rand McNally. Treats the industry in its economic relation to people, traces development from primitive times to the present; to be used with older children.

*BROWNE, E. A.—*Peeps at Industries—Rubber.* Macmillan. Account in simple language, illustrated.

BURKETT AND POE.—*Cotton.* Doubleday, Page. Cotton raising in the South; the cotton plant, how it grows, marketing, manufacture, by-products.

*CARPENTER, F. G.—*How the World Is Clothed.* American Book Co.

*CHAMBERLAIN, J. F.—*How We Are Clothed.* Macmillan.

*CHASE AND CLOW.—*Stories of Industry. Vol. 2.* Educational Pub. Co.

*COOKE, A. O.—*A Visit to a Cotton Mill.* Oxford University Press.

*COOKE, A. O.—*A Visit to a Woolen Mill.* Oxford University Press.

*COOKE, A. O.—*A Day with the Leather Workers.* Oxford University Press.

*CURTIS, A. T.—*The Story of Cotton.* Penn Pub. Co. In story form, illustrated.

DOOLEY, W. H.—*Textiles.* Heath.

GIBSON, C. R.—*Romance of Modern Manufacture.* Lippincott.

*Hall, J.—*Weavers and Other Workers.* Rand McNally. Reading book for younger children.

Hubert, P. G.—*The Business of a Factory.* Scribner's Magazine, March, 1897.

Keller and Bishop.—*Commercial and Industrial Geography.* Ginn.

Kinne and Cooley.—*Shelter and Clothing.* Macmillan.

*Lane, M. A. L.—*Industries of To-day.* Ginn.

*Laut, A. C.—*The Story of the Trapper.* Appleton.

Lehman, M. A.—*Leather Goods.* Ronald Press. Qualities of good leather, substitutes, preparation, manufacture, etc.

*Lyon, L. S.—*The Worker in Our Society,* Lessons in Community and National Life, Series A. U. S. Bureau of Education, 1918.

McGowan and Waite.—*Textiles and Clothing.* Macmillan.

Moore, A. S.—*Linen; from the Raw Material to the Finished Product.* Pitman and Co.

*Morris, C.—*Home Life in all Lands, Vol. I.* Lippincott.

*Mowry, W. A. and A. M.—*American Inventions and Inventors.* Silver, Burdette.

Nystrom, P. H.—*Textiles.* Appleton. The essential facts regarding the ordinary textiles of commerce, methods of manufacture and distribution, tests to determine quality, economic aspects.

Omerod, F.—*Wool.* Holt. History, production, marketing and manufacture.

*Rocheleau, W. F.—*Great American Industries, Vol. III.* Flanagan.

*Rocheleau, W. F.—*Geography of Commerce and Industry.* Educational Pub. Co.

Scherer, J. A. B.—*Cotton as a World Power.* Stokes.

*Schillig, E. E.—*The Four Wonders.* Rand McNally. The Production of cotton, wool, linen, and silk. Illustrated.

Steffens, L.—*The Modern Business Building.* Scribner's Magazine, July, 1897.

*Tappan, E. M.—*Makers of Many Things.* Houghton.

THOMPSON, E. B.—*Cotton and Linen Goods.* Ronald Press. Sources and cultivation of cotton and linen, spinning, weaving, color, design, dyeing.

TOOTHAKER, C. R.—*Commercial Raw Materials.* Ginn.

*VAN HOESEN, G.—*Cotton Factory and Its Workers.* Lessons in Community and National Life, Series B. U. S. Bureau of Education, 1918.

*VERY, E.—*Warp and Woof, the Story of the Textile Arts.* Educational Pub. Co.

*WILKINSON F.—*The Story of the Cotton Plant.* Appleton.

History

*FORMAN, S. E.—*Stories of Useful Inventions.* Century.

*HOLLAND, R. S.—*Historic Inventions.* Jacobs.

*LAMPREY, L.—*In the Days of the Guild.* Stokes. Stories of the golden age of English arts and crafts —wool merchants, wood carvers, etc. Illustrated.

*LYON, L. S.—*The Rise of Machine Industry.* Lessons in Community and National Life, Series A. U. S. Bureau of Education, 1918.

*MORRIS, C.—*Home Life in All Lands, Vol. II.* Lippincott.

*MOWRY, W. A. AND A. M.—*American Inventions and Inventors.* Silver, Burdette.

*REYNOLDS, M. J.—*How Man Conquered Nature.* Macmillan.

*SKEAT, W. W.—*The Past at Our Doors.* Macmillan.

*TRYON, R. M.—*Spinning and Dyeing Linen in Colonial Times.* Lessons in Community and National Life, Series C.

*WATSON, K. H.—*Textiles and Clothing.* American School of Home Economics. Primitive methods of spinning and weaving. Illustrated.

(*See also titles under* PRIMITIVE LIFE.)

Cost

*Ball and West.—*Household Arithmetic.* Lippincott.

*Dooley, W. H.—*Vocational Mathematics for Girls.* Heath.

*Gardener and Murtland.—*Industrial Arithmetic.* Heath.

Science

*Brownlee, Fuller and others.—*Chemistry of Common Things.* Allyn and Bacon.

*Clark, B. M.—*General Science,* American Book Co.

*Van Buskirk and Smith.—*The Science of Every-day Life.* Houghton.

Hygiene

*Kinne and Cooley.—*Clothing and Health.* Macmillan.

*Tuttle, T. D.—*Principles of Public Health.* World Book Co.

Shelter

Production and Distribution

*Barnard, C.—*Tools and Machines.* Silver, Burdette.

*Balderston, L. R.—*Housewifery.* Lippincott. Manual of practical housekeeping; plumbing, heating, lighting, furnishings, etc.

*Bassett, S. W.—*Story of Lumber.* Penn Pub. Co. Information about lumber camps and conservation. Illustrated.

*Bassett, S. W.—*The Story of Glass.* Penn Pub. Co. History and development of glass making. Story form.

*Bassett, S. W.—*The Story of Porcelain.* Penn Pub. Co.

Bevier, I.—*The House.* Amer. School of Home Economics. Evolution of house, arrangement of rooms, furnishings, decorations, care, etc.

Binns, C. F.—*Story of the Potter.* Wessels.

Binns, C. F.—*The Potter's Craft.* Van Nostrand.

*Bishop and Keller.—*Industry and Trade.* Ginn.

*Carpenter, F. G.—*How the World Is Housed.* American Book Co.

CASSON, H. N.—*The Romance of Steel.* Barnes. An account of the growth of the steel industry and the men concerned in it.

*CHAMBERLAIN, J. F.—*How We Are Sheltered.* Macmillan.

*CHASE AND CLOW.—*Stories of Industry, Vols. I and II.* Educational Pub. Co.

CLARK, T. M.—*The Care of the House.* Macmillan. How the house is built, heating, plumbing, gas, electricity, etc.

*COOKE, A. O.—*A Day in an Iron Works.* Oxford University Press.

*COOKE, A. O.—*A Visit to a Coal Mine.* Oxford University Press.

*DORRANCE, J. G.—*The Story of the Forest.* American Book Co.

GREENE, H.—*Coal and Coal Mines.* Houghton.

*HILL, H. C.—*The Wonder Book of Knowledge.* John C. Winston. Short accounts of a number of familiar things.

*HOPKINS, W. J.—*The Doers. Houghton.* Short stories in very simple language about the various workmen engaged in building a house.

HUSBAND, J.—*A Year in a Coal Mine.* Houghton. Real experiences of the author.

HUTCHINSON, E. L.—*House Furnishings.* Ronald Press. Materials and manufacture.

KELLER AND BISHOP.—*Commercial and Industrial Geography.* Ginn.

*KINNE AND COOLEY.—*Shelter and Clothing.* Macmillan.

*LANE, M. A. L.—*Industries of To-day.* Ginn.

*MARTIN, E. A.—*The Story of a Piece of Coal.* Appleton.

*MCFEE, I. N.—*Little Tales of Common Things.* Crowell. Short account in story form of various articles.

*MEADE, C. D.—*The Story of Gold.* Appleton. Development of modern gold mining industry.

*MORRIS, C.—*Home Life in all Lands, Vol. I.* Lippincott.

*Parker, E. P.—*Petroleum and Its Uses,* Lessons in Community and National Life, Series C. U. S. Bureau of Education, 1918.

Pinchot, G.—*A Primer in Forestry.* Farmer's Bulletin 173. U. S. Dept. of Agriculture.

*Redway, J. W.—*Commercial Geography.* Scribner.

*Rocheleau, W. F.—*Great American Industries, Vols. II and III.* Flanagan.

*Rocheleau, W. F.—*Geography of Commerce and Industry.* Educational Pub. Co.

*Samuel, E. I.—*Story of Iron and Steel.* Penn Pub Co. Method of mining and making into machines.

*Samuel, E. I.—*Story of Gold and Silver.* Penn Pub. Co. Methods of mining, description of the process of minting, and something about currency.

*Shinn, C. H.—*The Story of the Mine.* Appleton. An attempt to describe in a clear and simple way some of the every day features as well as the unusual things connected with mines, keeping constantly in view the human elements.

Smith, J. R.—*The Story of Iron and Steel.* Appleton.

*Smith, J. R.—*Iron and Steel.* Lessons in Community and National Life, Series C. U. S. Bureau of Education, 1918.

Talbot, F. A. A.—*Oil Conquest of the World.* Heinemann.

Talbot and Breckinridge.—*The Modern Household.* Whitcomb and Barrows. The household as a social unit, as the center of consumption, the activities of the household, the household and the community.

*Tappan, E. M.—*Diggers in the Earth.* Houghton.

*Tappan, E. M.—*Makers of Many Things.* Houghton.

Toothaker, C. R.—*Commercial Raw Materials.* Ginn.

Tower, W. S.—*The Story of Oil.* Appleton.

White, M.—*The Fuels of the Household.* Whitcomb and Barrows. Composition, combustion, incandescence.

*Williams, A.—*The Romance of Modern Mining.* Lippincott. Description in simple language of the mining of different minerals in different parts of the world in ancient and modern times.

History

*Forman, S. E.—*Stories of Useful Inventions.* Century.

*Holland, R. S.—*Historic Inventions.* Jacobs.

*Morris, C.—*Home Life in All Lands, Vol. II.* Lippincott.

*Mowry, W. A. and A. M.—*American Inventions and Inventors.* Silver, Burdette.

*Quennell, M. and C. H. B.—*A History of Every-day Things in England.* Scribner.

*Reynolds, M. J.—*How Man Conquered Nature.* Macmillan.

*Skeat, W. W.—*The Past at Our Doors.* Macmillan.

Viollet-le-Duc, E. E.—*The Habitations of Man in All Ages.* Osgood. Very valuable, tracing "the origin and development of domestic architecture among the several races of mankind, the modes in which human dwellings have been constructed, and the appearance and manners of their inhabitants from prehistoric times down to modern times."

Waterhouse, P. L.—*The Story of the Art of Building.* Appleton. Traces the course of architecture from Egyptian down to modern times.

(See also titles under Primitive Life.)

Cost

*Ball and West.—*Household Arithmetic.* Lippincott.

*Brookman, A. T.—*Family Expense Account.* Heath.

*Calfee, J. E.—*Rural Arithmetic.* Ginn.

*Dooley, W. H.—*Vocational Mathematics for Girls.* Heath.

*Hoyt and Peet.—*Every-day Arithmetic.* Houghton.

Sheaffer, W. A.—*Household Accounting and Economics.* Macmillan.

TERRILL, B. M.—*Household Management.* American School of Home Economics. Household accounts, marketing, economy in spending, etc.

Science

*BROWNLEE, R. B., AND OTHERS.—*Chemistry of Common Things.* Allyn and Bacon.

*CLARKE, B. M.—*General Science.* American Book Co.

DODD, M. E.—*Chemistry of the Household.* American School of Home Economics. A day's chemistry—an outline of the simple and most evident chemical changes suggested by a day's work at home.

*FARADAY, M.—*Chemical History of a Candle.* Dutton. Description of the science involved in a candle, written in a simple style suitable for young people.

*HODGDON, D. R.—*Elementary General Science.* Hinds, Hayden and Eldredge.

LYNDE, C. J.—*Physics of the Household.* Macmillan. The physics of mechanical appliances, water supply, heat, electricity, light in the home.

*TRAFTON, G. H.—*Science of Home and Community.* Macmillan.

*VAN BUSKIRK AND SMITH.—*The Science of Every-day Life.* Houghton.

WILLIAMS, H. S. AND E. H.—*Science in the Industrial World.* Goodhue. Description of the telephone, telegraph, manufacture of paper, paints, dyes, etc.

Hygiene

BROADHURST, J.—*Home and Community Hygiene.* Lippincott.

CAPES AND CARPENTER.—*Municipal House Cleaning.* Dutton. Full discussion of the methods and experiences of American cities in collecting and disposing of ashes, garbage, sewage, etc.

ELLIOTT, S. M.—*Household Hygiene.* American School of Home Economics. The health of the home, the best situation for the house, importance of the cellar, drainage, plumbing, ventilating, etc.

GERHARD, W. P.—*Disposal of Household Wastes.* Van Nostrand.

*O'SHEA AND KELLOGG.—*Heath and Cleanliness.* Macmillan.

PRUDDEN, T. M.—*Dust and Its Dangers.* Putnam.

PRUDDEN, T. M.—*The Story of Bacteria.* Putnam.

Transportation

General

*ADAMS, C. C.—*Elementary Commercial Geography.* Appleton. Emphasis given to improved transportation, the application of steam-power to machinery, and the progress in chemical science as the main factors in the development of commerce and industries.

*BISHOP AND KELLER.—*Industry and Trade.* Ginn.

*CARPENTER, F. G.—*How the World Travels.* American Book Co.

*CHAMBERLAIN, J. F.—*How We Travel.* Macmillan.

DAY, C.—*History of Commerce.* Longmans. Account of the commerce of various nations from the time of the early Egyptians to the present.

*DUNHAM, E.—*Jogging around the World.* Stokes. Pictures and short descriptions of vehicles and beasts of burden in many countries.

*GREGORY, KELLER AND BISHOP.—*Physical and Commercial Geography.* Ginn. Discusses the relation of man to his environment, and the geographic influences on trade.

*HALL, C.—*Wonders of Transport.* Blackie, London.

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*LANE, M. A. L.—*Triumphs of Science.* Ginn.

*MORRIS, C.—*Home Life in All Lands, Vol. I.* Lippincott.

*MOWRY, W. A. AND A. M.—*American Inventions and Inventors.* Silver, Burdette.

*REDWAY, J. W.—*Commercial Geography.* Scribner.

*Rocheleau, W. F.—*Great American Industries, Vol. 4.* Flanagan.

*Smith and Jewett.—*An Introduction to Science.* Macmillan.

*Smith, J. R.—*Industrial and Commercial Geography.* Holt. A standard text dealing with the trade routes and the source and nature of materials for manufacture.

*Tappan, E. M.—*Travellers and Travelling.* Houghton.

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*Werthner, W. B.—*How Man Makes Markets.* Macmillan. The story of commerce simply told.

Roads

*Moore, C. H.—*Good Roads.* Lessons in Community and National Life, Series B. U. S. Bureau of Education, 1918.

Page, L. W.—*Roads, Paths, and Bridges.* Macmillan.

*Ravenel, S. W.—*Road Primer for School Children.* McClurg. Elementary principles and practice of road-making. Construction and maintenance, causes and effects of good roads.

Streets

Cohen, Mrs. J. H.—*What We Should All Know About Our Streets.* Women's Municipal League, New York.

Fleming, R. D.—*Railroad and Street Transportation.* Russell Sage Foundation.

Gutmann, L.—*The Motorman and His Duties.* McGraw Hill Book Co.

Railroads

Crump, I.—*The Boys' Book of Railroads.* Dodd, Mead.

*Husband, J.—*The Story of the Pullman Car.* Stokes.

Johnson and van Metre.—*Principles of Railroad Transportation.* Appleton. Full discussion of all matters connected with railroads.

TALBOT, F. A. A.—*Railway Wonders of the World.* Cassell.

TALBOT, F. A. A.—*Railway Conquest of the World.* Heinemann.

*WARMAN, CY.—*The Story of the Railroad.* Appleton.

Water

*CHATTERTON, E. K.—*Sailing Ships and Their Story.* Lippincott.

*COOKE, A. O.—*A Day in a Ship Yard.* Oxford University Press.

*DORLING, T.—*All About Ships.* Cassell.

*GRANT, GORDON.—*The Story of the Ship.* McLoughlin Bros. Large colored pictures showing ships from early times to the present. Short descriptions underneath.

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Communication

*BUTLER, F. O.—*The Story of Paper Making.* Butler Paper Co., Chicago.

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*CHASE AND CLOW.—*Stories of Industry, Vol. 2.* Educational Pub. Co.

CLODD, E.—*The Story of the Alphabet.* Appleton.

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*MOWRY, W. A. AND A. M.—*American Inventions and Inventors.* Silver, Burdette.

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*REYNOLDS, M. J.—*How Man Conquered Nature.* Macmillan.

*ROCHELEAU, W. F.—*Great American Industries, Vols. III and IV.* Flanagan.

*ROLT-WHEELER, F. W.—*Boy with the United States Mail.* Lothrop.

SINDALL, R. W.—*The Manufacture of Paper.* Van Nostrand.

STEFFENS, L.—*The Business of a Newspaper.* Scribner's Magazine, October, 1897.

TOWERS, W. H.—*Masters of Space. Harper.* Communications among the ancients, signals past and present, fore-runners of the telegraph, the cable, the telephone, etc.

*VAN BUSKIRK AND SMITH.—*The Science of Everyday Life.* Houghton.

Conservation of Wealth

*AUSTIN, O. P.—*Uncle Sam's Secrets.* Appleton.

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*HOYT AND PEET.—*Everyday Arithmetic.* Houghton.
*KIRKPATRICK, E. A.—*Money in the Community and the Home.* Lessons in Community and National Life, Series C. U. S. Bureau of Education, 1918.
KIRKPATRICK, E. A.—*The Use of Money.* Bobbs Merrill.
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*LYON, L. S.—*The Services of Money.* Lessons in Community and National Life, Series A. U. S. Bureau of Education, 1918.
*MARRIOTT, C.—*Uncle Sam's Business.* Harper.
*MOULTON, H. G.—*The Commercial Bank and Modern Business.* Lessons in Community and National Life, Series A. U. S. Bureau of Education, 1918.
*MCLOUGHLIN, K.—*Before Coins Were Made.* Lessons in Community and National Life, Series C.
*RETICKER, R.—*The Minting of Coins.* Lessons in Community and National Life, Series C.
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Education

*DOLE, C. F.—*The Young Citizen.* Heath.
*DUNN, A. W.—*The Community and the Citizen.* Heath.
*HILL, M.—*Lessons for Junior Citizens.* Ginn.
*NIDA, W. L.—*City, State and Nation.* Macmillan.

Recreation

COLLIER, J.—*The Lantern Bearers.* The Survey, June, 1915, and January, May and July, 1916.
*HILL, M.—*Lessons for Junior Citizens,* Ginn.
*JEWETT, F. G.—*Town and City.* Ginn.
*MORRIS, C.—*Home Life in All Lands, Vol. II.* Lippincott.
MACKAYE, P.—*The Civic Theatre in Relation to Redemption of Leisure.* Mitchell Kennerly.

Religion

*Abbott, E.—*Charity in the Community.* Lessons in Community and National Life, Series C. U. S. Bureau of Education, 1918.

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*Dunn, A. W.—*The Community and the Citizen.* Heath.

*Morris, C.—*Home Life in All Lands, Vol. II.* Lippincott.

*Soares, T. G.—*The Church as a Social Institution.* Lessons in Community and National Life, Series B.

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*Downes, A. M.—*Fire Fighters and Their Pets.* Harper.

*Hill, C. T.—*Fighting a Fire.* Century.

*Hill, M.—*Lessons for Junior Citizens.* Ginn.

*Jenks, T.—*The Fireman.* McClurg.

*Jewett, F. G.—*Town and City.* Ginn.

*Richman and Wallach.—*Good Citizenship.* American Book Co.

Weeks, A. D.—*The Avoidance of Fires.* Heath.

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*Dunn, A. W.—*The Community and the Citizen.* Heath.

*Hill, M.—*Lessons for Junior Citizens.* Ginn.

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WARING, G. E.—*Street Cleaning.* Doubleday.

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*DOLE, C. F.—*The Young Citizen.* Heath.
*HILL, M.—*Lessons for Junior Citizens.* Ginn.
OSBORNE, T. M.—*Society and Prisons.* Yale University Press.
*RICHMAN AND WALLACH.—*Good Citizenship.* American Book Co.
WOODS, A.—*Policeman and Public.* Yale University Press.

Government

*AYRES, E.—*Custom as the Basis for Law.* Lessons in Community and National Life, Series C. U. S. Bureau of Education, 1918.
*DOLE, C. F.—*The Young Citizen.* Heath.
*DUNN, A. W.—*Coöperation through Law.* Lessons in Community and National Life, Series C.
*EDWARDS, G.—*How State Laws are Made and Enforced.* Lessons in Community and National Life, Series B.
*SPENCER, W. H.—*The Development of a System of Laws.* Lessons in Community and National Life, Series B.

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*BAYLISS, C. K.—*Lolami, the Little Cliff Dweller.* Public School Publishing Co.
*BROWN, E. V.—*When the World Was Young.* World Book Co. Short accounts by various authors on various historical topics; the story of the food quest, the story of transportation, the story of lighting and heating.
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Mason, O. T.—*Woman's Share in Primitive Culture.* Appleton. Description of women's work in early times as food-bringer, weaver, skin-dresser, potter, etc. Illustrated.

Mason, O. T.—*Primitive Travel and Transportation.* Report of the Smithsonian Institution, 1894.

Mason, O. T.—*The Human Beast of Burden.* U. S. National Museum Report, 1887. An account of primitive methods and the evolution of travelling. Illustrated.

*McIntyre, M. A.—*The Cave Boy of the Age of Stone.* Appleton.

*Morris, C.—*Home Life in All Lands, Vol. 2.* Lippincott. Manners and customs of uncivilized peoples.

Nadaillac, J. F. A.—*Manners and Monuments of Prehistoric People.* Putnam. Food, weapons, tools, clothing, industry, social organization.

Starr, F.—*Some First Steps in Human Progress.* Chautauqua Press. Fire-making, food getting, basketry and pottery, houses, dress, etc.

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*Waterloo, S.—*The Story of Ab.* Doubleday. Portions can be used with children to illustrate various phases of primitive life.

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*Chamberlain, J. F. and A. H.—*The Continents and Their People—North America.* Macmillan.

*Dryer, C. R.—*Elementary Economic Geography.* American Book Co.

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Tappan, E. M.—*The World's Story.* Houghton. Vols. 12, 13. The United States.

Government

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*Austin, O. P.—*Uncle Sam's Secrets.* Appleton. In story form.

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History

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*HALL, J.—*Our Ancestors in Europe.* Silver, Burdette.
*NIDA, W.—*Dawn of American History in Europe.* Macmillan.

Indians

*CHASE, A.—*Children of the Wigwam.* Educational Pub. Co. Reading book for children, showing child-life among the Indians. Illustrated.
CURTIS, N.—*The Indians' Book.* Harper. Written by the Indians and recorded, edited, and arranged by Miss Curtis. Songs and music.
*EASTMAN, C. A.—*Wigwam Evenings.* Little, Brown. Sioux folk tales retold by an Indian.
*EASTMAN, C. A.—*Indian Child Life.* Little, Brown. Real Indian stories told by a real Indian.
*EASTMAN, C. A.—*Indian Boyhood.* Doubleday, Page. An account of Indian boy-life told by an Indian. Training, games, and sports, playmates, etc.
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GRINNELL, G. B.—*Blackfeet Indian Stories.* Scribner. Folk-lore of the Blackfeet Indians.

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MASON, O. T.—*Aboriginal American Basketry.* U. S. National Museum Report, 1902. Exhaustive treatment with many illustrations.

MORGAN, L. H.—*Houses and House Life of the American Indians.* Contributions to North American Ethnology, Vol. IV. Gives various details about the type of house and social customs. Illustrated.

*SNEDDEN, G. S.—*Docas the Indian Boy of Santa Clara.* Heath. Excellent story of primitive Indian life.

*Starr, F.—*American Indians.* Heath. Reader for children. Account of Indian life and customs from authoritative sources. Contents: house, dress, sign language, picture writing, dances and ceremonials, etc.

Wissler, C.—*North American Indians of the Plains.* American Museum of Natural History, New York. Handbook Series No. 1. Takes up food, clothing, shelter, industrial arts, social organization, religion, etc.

Wissler, C.—*The American Indian.* McMurtrie. A general summary. Contents: Domestication of animals, methods of transportation, the textile arts, the ceramic arts, decorative designs, architecture, special inventions, literature, music, social groups, mythology, etc.

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*Seelye, Mrs. E. (Eggleston).—*The Story of Columbus.* Appleton.

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Colonies

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*Coffin, C. C.—*Old Times in the Colonies.* Harper. Customs, social life.

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*McMurry, C. A.—*Pioneers of the Rocky Mountains and the West.* Macmillan.

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